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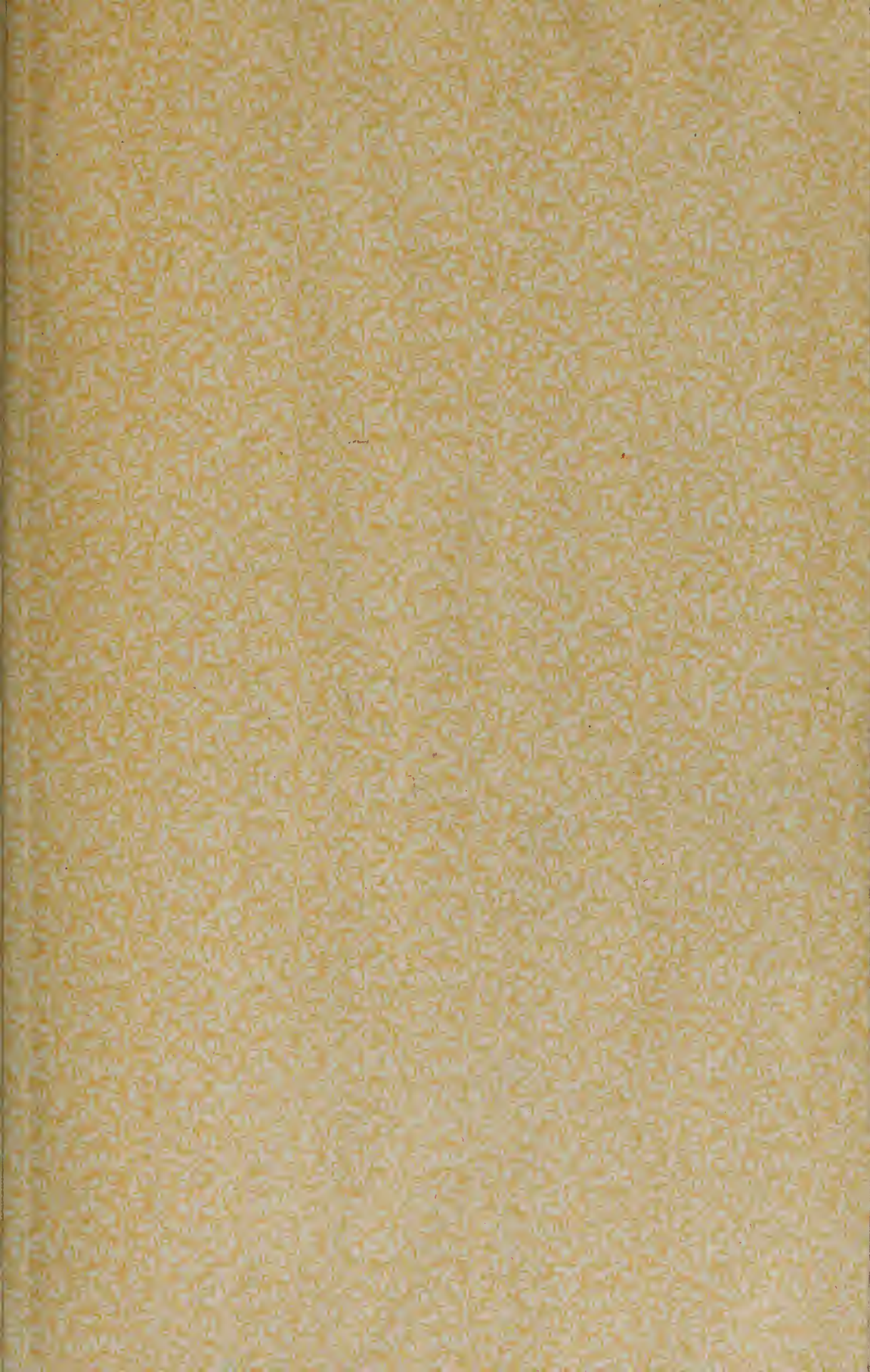
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THE NEWLY COMPLETED SPRING GAP POWER HOUSE ON THE STANISLAUS RIVER

Vol
14

JUNE 1922

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Pernicious Aspects of the So-Called Water and Power Act

By WIGGINTON E. CREED
President, Pacific Gas and Electric Company

(An address delivered before the California Bankers Association at its annual convention at Del Monte, May 26, 1922.)

Mr. President and Gentlemen: When we discuss the so-called California Water and Power Act, we discuss "one of the main provisions of the working program" of the California branch of the Non-Partisan League of North Dakota. This organization has adopted the so-called act as its own child, and hails it as the first step in the accomplishment of the League's program for state owned and operated railways, factories, mills, storage plants, packing houses, creameries, sugar and oil refineries, banks and insurance companies. Identification of the scheme with the brand of thinking which sovietized Russia and brought disaster upon North Dakota is thus made clear and unmistakable.

The proposed measure is misnamed. It is not an act but a constitutional amendment. If adopted by the people at next November's election, it becomes at once a part of the state constitution, forever beyond the power of the Legislature to alter, amend or control in any way. Not a single provision, no matter how disastrous it may prove to be, can ever be changed except by vote of the people at another election.

The main purpose of the measure is to launch the State of California in the business of generating and selling electric power. To this end, the measure (1) creates a state bond issue of \$500,000,000 se-

cured by a direct and explicit mortgage on all the taxable property in the state now existing or hereafter created; (2) turns over the expenditure of this gigantic sum of money to an appointive board of five men, called the "Water and Power Board," with the right given to a quorum of three out of the five members to create an organization without restriction as to numbers, salaries or methods of selection, and to spend the money when they please, where they please and how they please, without review, revision or control by any legislative, executive, judicial or other department of the state government; (3) unlocks the doors of the state treasury and confers on these men the power to enter, without the consent or permission of the Legislature or Governor, and take out of the state treasury all the money they need to pay either principal or interest of all or any part of the \$500,000,000 bond issue; and (4) commands that restitution shall be made to the state treasury by levying new and additional taxes upon the people.

The wording of the proposed amendment thus specifies a huge financial, political and economic machine without safety appliances, without necessary controls and without stable foundations.

Contemplation of the campaign under way to persuade the people to accept these specifications suggests a brief con-

sideration of the fundamental situation in our government and in our society. We are living in an age of democracy under a democratic form of government. A democracy has supreme merit but it also presents great dangers. Chief amongst these dangers is the indifference or apathy of the average citizen toward the problems of the day for whose sound solution he is responsible.

Neglect of the duties of citizenship produces two results: first, absence of that knowledge and information absolutely essential to wise and profitable decisions on questions of economic and social policy, and, second, a tendency to accept prophecies for facts, dreams for realities, and to act regardless of circumstances on the prejudicial appeal of slogans and catchwords, which signify nothing as to the merits of an issue and are wholly lacking in application to the problem in hand.

If men deliberately sought to take advantage of the weakness in a democratic form of government, they would do just what the advocates of the so-called Water and Power Act are doing. Their campaign is thus far not a campaign of instruction and education but a campaign of catchwords and appeals to prejudice.

The cry is made: "The people must conserve and control their natural resources." But the power companies do not take coal, oil or lumber from either public or private domain. All that they do is divert water through wheels in power houses and turn the water back into the stream bed undiminished, whence it can be and actually is taken for other uses in the public interest. As to control, the public exercises the most complete authority and direction over the operations of the power companies through the State Railroad Commission, the Federal Water Power Commission and the state and federal laws administered by them.

Again, the signal is hoisted that "the glorious achievements under a similar plan in Ontario, Canada," are proof of the wisdom of the measure proposed for California. The truth is that there is not a "similar plan" in Ontario. The people of Ontario have not surrendered their destiny to a super-government of five men. They have retained, through their Legislature, control of their Hydro-Electric Power Commission, may thereby grant or refuse it money and amend or repeal the law under which it operates at any session of the Legislature. It is true that Ontario adopted the policy of "power at cost," but there are no "glorious achievements" in Ontario. Rates for power in Ontario have been higher than the rates promised, and construction costs have greatly exceeded estimates. This is not my opinion. It is the solemn conclusion of the Premier of Ontario, who has publicly promised the people of Ontario an investigation of the high costs and charges for electric power. But this is not all! The rural and agricultural sections of Ontario complained of the high cost of power. The Legislature investigated. Under date of November 20, 1920, the Legislature's investigating committee found that the cost of power in Ontario was higher than agriculture could pay and that the high cost had prevented the use of power in the agricultural and rural sections of Ontario to their great injury and damage. The Legislature's solution of the situation was to vote a fifty per cent bonus for power service in rural sections of the province, the cost of the bonus to come out of the Consolidated Revenue Fund. So much for "glorious achievements" in Ontario.

Yet again the alluring phrase is held before the people of "power at cost and no taxes." But "power at cost" would be ruinous and disastrous in California just as it proved to be in Ontario. Rural,

agricultural and thinly populated districts cannot afford "power at cost," because of the small market for the relatively large mileage of lines required to serve these sections. They must have "power at less than cost" if the back country is to continue to grow and thrive. And how can any one solemnly promise "no taxes" when the act itself contains a direct, permanent and continuing appropriation from the state treasury to pay the principal and interest of the bonds and a mandate to the fiscal officers of the state to levy and collect additional taxes to meet these appropriations?

With shibboleths of this sort filling the air, no citizen can afford to ignore his individual responsibility for the formulation of governmental policies. Success, honor and prosperity will exist only as we retain a lively sense of our obligations as citizens to know the facts and understand the issues presented to us for decision. Nothing illustrates this fundamental truth better than the so-called Water and Power Act. It is unsound, unwise and fraught with danger to the state. All that is necessary to defeat the act is for the people to read it and know what it contains, for they can be trusted to make sound decisions when they are fully possessed of the facts and the evidence. If meeting slogan with slogan will help to arouse their interest to read and analyze the act, the new slogan may well be "Let there be light!"

Turning on the light will disclose two fundamental issues presented by this act: first, "government in business," and second, the question of the soundness and wisdom of the act itself.

Logic and experience may be summoned to reach a conclusion on "government in business." Electric power is a manufactured product. The power industry is one of the most technical and intricate industries known. It is pro-

posed now to turn this industry over to our governmental or political organization. But we have already assigned to this organization very definite responsibilities to carry out the ordinary functions of government. Our political machinery has not worked as efficiently as we think it ought to work and we clamor for increased efficiency and lower costs. Logic seems to suggest that we improve the working of our political machinery in respect of the job it now has to perform before we give it new, additional and more difficult tasks.

The only hope of better government lies in less government. It will never be attained by extending the functions of government.

Experience teaches that every time government goes into business, the result is increased taxes. The government operation of our shipping, the experiments in North Dakota, and the Canadian government's operation of railroads are adequate for purposes of illustration.

Transportation in Canada is supplied almost entirely by two great railway systems, one owned and operated by the government, the other by a privately owned company. The two systems are almost identical as to physical and operating conditions. Both have an investment of a little more than a billion dollars, both operate nearly twenty thousand miles of track, both extend from the Atlantic to the Pacific and both serve substantially the same territory. But the operating statements show a vast difference. In 1920, the last year for which figures are available, the government system incurred a deficit of sixty-four million dollars, while the privately owned and operated system made an operating surplus of nearly thirty-three million dollars.

But even though a government owned and operated business enterprise should

escape operating deficits, increased taxes follow as sure as night follows day. When the state or any other government goes into business, it acquires property and pays for it by issuing bonds. Both the property acquired and the bonds are tax-free. The immediate result is a shrinkage in the government revenues because of the investments that go into the tax-free securities and the withdrawal of the government owned properties from the tax roll. The effect is to increase the tax burden upon the properties remaining subject to taxation, because the expenses of government go on just the same and the revenues to meet them must be obtained from a reduced amount of taxable property.

Applied to the State of California alone, the annual loss in taxes on account of tax-exempt federal, state and local bonds is approximately \$20,000,000. How great shall we allow the tax burden to become by withdrawing private property from the tax rolls and issuing non-taxable bonds? Shall we continue until one-half the present taxable property carries the full load or until the last lone farm is left in private ownership to pay all the taxes?

The present bonded debt of the state is approximately \$73,000,000. This is a greater bonded debt than that of any other state in the Union except New York and Massachusetts. If the \$500,000,000 bond issue of the Water and Power Act is added to California's existing bonded debt, we shall acquire the distinction of having more than forty per cent of the aggregate debt of all the states of the Union.

What will happen to our tax bills, even if we assume that the five men with autocratic control of \$500,000,000 perform miracles and make no losses?

The tax burden on locally assessed property for 1920-21 was found by the State Board of Equalization to be \$1.63

on each \$100 of taxable property. On this basis, five hundred million dollars of taxable property will produce in local taxes \$8,150,000 annually. The Water and Power Board must buy property to do business. If it spends the entire \$500,000,000 for properties now locally assessed, the public will lose \$8,150,000 annually in taxes. The light, heat and power companies pay more than \$9,000,000 annually in taxes, of which, in round figures, \$7,000,000 is paid into the state treasury for state taxes. If the Water and Power Board acquires the operative properties only of these companies, the state will lose the entire sum, or about seventeen per cent of its entire tax revenue.

In any event, the expenditure of the \$500,000,000 will cause an enormous loss in taxes, which must be made up by the other taxpayers. On the other hand, the investment of \$500,000,000, not in tax-free securities, but in properties or industries subject to taxation, would increase the public revenues by not less than \$8,000,000.

Even if we grant every claim made by the proponents of the so-called act, and assume economical construction, capable management and efficient operation by the political machine, and assume also, despite experience to the contrary, that the entire \$500,000,000 can be obtained at 5 per cent interest, the maximum annual saving under all these assumptions, after adding sinking fund requirements, will amount to only \$4,800,000, or \$1.30 per capita per annum, on a huge investment of \$500,000,000. This maximum saving is, however, not a real or substantial thing but fictitious, because to make the saving the public must lose nearly twice as much, or \$8,000,000, in taxes. Why add the risk of additional losses through political management?

These are all plain truths which the

taxpayer should ponder before he adopts the slogan of "More government in business." But what of the act itself? Is it wisely drawn and is it free from dangerous and un-American provisions?

The so-called act is the last word in autocracy. American policy is against autocracy either in business or in government. American blood has been spilled to preserve the right of the people to control public expenditures and tax levies; but, under this act, the Water and Power Board may spend money without review or control by the people or their representatives, take money out of the treasury without the consent of the people or their duly elected representatives, and the taxes to foot the bills are made automatic. Nothing more contrary to American ideals and policy can be conceived; but the board's unlimited power is not confined simply to matters of policy. It may do anything it wishes to do, anything it finds to be necessary or convenient, and specifically the board can:

1. Employ as many engineers, legal advisers, superintendents, supervisors, foremen, bookkeepers, stenographers and other employees and pay such salaries as it may determine without regard to present civil service rules and regulations. Here is the germ of a political machine which is bound to grow and multiply.

2. Manufacture or otherwise acquire any materials, *raw or finished*, used in the power industry, which means that the board may engage in *any* business—cement manufacturing, copper mining and smelting, oil production, railroading, retailing, distributing, etc.

3. Fix rates for electric service without a hearing, change rates at will and prescribe the terms of contracts for electric service. There is no provision for review, control or regulation. The board is supreme.

4. Take away from any *city, farming community or water district* its undeveloped water and power resources, if they are not developed within two years after notice from the board.

5. Spend all or any part of the \$500,000,000 outside the State of California if, in the opinion of the board, it may be necessary or convenient.

As a whole, the measure takes away from the people any voice as to when, where or how proposed projects shall be developed, what districts of the state shall be served, what rates shall be charged and what the terms of contracts for service shall be. The people are to be suppliants before a political board. Furthermore, under the terms of the act, only portions of the state can be served, and those portions are to be selected by the board. But *all* the taxable property of the state is liable for the bills.

The so-called act is not even free from unsound and ruinous financial policies. Under its express terms, the proceeds of bonds may be used to pay the expenses of operation or maintenance incurred by the board. This is even worse than issuing bonds for roads which wear out before the bonds can be paid. It means that the state's capital will be frittered away and wasted.

Another part of the act provides that, "in order to avoid appropriations from the general fund and resulting taxation," *new* bonds may be issued and sold to pay either principal or interest of old bonds outstanding. Taxation will not be avoided by pyramiding the state's indebtedness, or by paying interest with more bonds. It is startling to note that under this provision bonds in excess of \$500,000,000 can be issued. After this huge amount of bonds is exhausted, more bonds could be issued to pay all or any part of the annual interest on the half billion dollars of bonds already outstanding.

Even if one were to accept the doctrine

of "government in business," one cannot accept this act. It turns over to a quorum of three out of five men the expenditure of \$500,000,000 in business ventures without any check or control over their discretion or judgment, sets these men up as a dominating, autocratic force above the existing government and gives them blanket authority to impose on the people any number of unsound and dangerous financial and economic policies.

But governments do not exist for busi-

ness. They exist to assure the citizen liberty, opportunity and security. America has grown great, strong and prosperous because the inventive genius, initiative, self-reliance and energy of her citizens have been allowed free and untrammelled development and have not been restrained by the domination of governmental direction and paternalism. Forsake this American ideal and conception of government and you destroy the very foundation stones on which we have built.



Electrical Men of the Coast Send Out a Stirring Message to the World

By FREDERICK S. MYRTLE

The sixth annual convention of the Pacific Coast Electrical Association, by which title is now known what was formerly the Pacific Coast geographical section of the National Electric Light Association, was held this year in Los Angeles May 31 to June 2, inclusive, and proved by far the most interesting gathering, from every point of view, that has yet been held under the auspices of the electrical industry of the Pacific Coast.

To begin with, the convention drew a record attendance, for the registration reached nearly the seven hundred mark. This may be accounted for, in a great measure, by the new order of things whereunder the electrical men of the Coast, in an incorporated body distinctly independent while yet, as before, affiliated with the great national association, have assembled representatives of every branch of the electrical industry, including not merely the power companies but, also, the appliance men, dealers, jobbers, contractors, and all with an equal interest in the welfare of the industry as a whole.

Second. The Ambassador Hotel, which was the scene of the convention, is commodious, airy and attractive in its equipment as well as in its surroundings. It contains a spacious theatre which met all requirements for general sessions and there were found side rooms equally commodious to hold the technical, commercial and accounting sessions.

Third. Not only did the general sessions average up higher in point of attendance than at any previous convention but the same was observed of the departmental sessions before referred to.

The electrical industry, then, may well congratulate President A. B. West and his officers and committees upon an event which holds the record so far as the Pacific Coast is concerned.

Concerning the situation in which the electrical industry out West finds itself today, the keynote was sounded by

President West, who is chief executive of the Southern Sierras Power Company, in a remarkably well ordered and well delivered address when he said:

"One of the striking lessons of our time is the inter-dependence of all industry and all classes. The complex social and economic structure, which modern civilization has built up, is so inter-related and tied together that no element can be injured or destroyed without weakening the whole edifice. In a broad sense we have a common destiny and must prosper or fall together. This is peculiarly true of the electrical industry which today renders a basis service indispensable to nearly all other lines of business and industry; as a result, a decline in any one of our important industries will at once adversely affect the earnings of the electric utility. On the other hand, anything which tends to impair the service of the electric utility, or its ability to expand that service as required by the increasing demands of its consumers, strikes a serious blow not only at the utility itself but at the whole industrial life of the community."

Following up this thought President West told his audience the reasons which had brought about a change of title of the organization, and expressed the opinion that so far from creating a breach between the coast and the national body the step recently taken had established a more harmonious and generally satisfactory relation than had been the case for a number of years.

President West complimented the various committees upon the work of the past year, particularly the technical, commercial and accounting sections under the chairmanships, respectively, of Messrs. S. J. Lisberger, M. E. Newlin and P. R. Ferguson. The work of the California Electrical Co-operative Campaign was also described and the announcement made that among other activities during

the past year the Campaign had established electrical homes in Los Angeles, San Francisco and elsewhere that were visited by over 136,000 people. Needless to say, customer ownership came in for its meed of commendation, the Pacific Gas and Electric Company being given the credit of having inaugurated, in 1914, the plan for the direct sale of stock to customers which has since been followed by nearly all the leading power companies of the country.

Coming to the inevitable subject of the California Water and Power Act, so-called, the Association's President gave utterance to observations which appear to be worth quoting in full. He said:

"After the costly experience of our National Government with the operation of the railroads and the shipping board, followed by the disastrous results of North Dakota's venture into state socialism, nothing short of a practical breakdown of private ownership would justify such an experiment as proposed.

"Let us take this statement then, that the hydro-electric industry as now organized in California has failed to meet the needs of those whom it serves and should therefore be taken over by the State, and examine its truth or falsity.

"In California and under private ownership there has been developed the greatest interconnected system of power transmission lines in the world, extending over a thousand miles from Eugene, Oregon, in the north to the Mexican border in the south, and in the east to Tonopah, Nevada, and Yuma, Arizona.

"These interconnections not only produce large operating economies through the building up of system load factors and the substitution of water for steam generated power, the benefits of which accrue to the public, but all over the great territory covered they make possible better service and the meeting of a shortage of power on any one system out of a surplus to be found in other parts of the State.

"The largest concentrated block of electric power ever made available for public use is made possible by this interconnection, which ties together over a million horsepower of hydro-electric generating plants and 500,000 horsepower

in steam generating plants, with a total annual output of energy delivered of close to four billion kilowatt hours.

"As a matter of fact, we have here in California in actual operation the super-power system which the Atlantic seaboard is today just planning as one of its major projects for the coming decade.

"In California and under private ownership there has been developed a universal use of electricity which stands without parallel. In 1920, 83 per cent of the dwelling houses of this State were wired as against 35 per cent for the United States. The whole State has been griddled with transmission and distribution lines so that the inhabitants of the rural and sparsely settled districts have at their command electric service on an equal basis with those of the urban communities. The service is rendered generally at uniform rates which are among the lowest in the world. The average rate per kilowatt hour for power generated, paid by California consumers in 1921, was only 1.46 cents, compared with 2.17 cents for the balance of the United States.

"As a result of these conditions the per capita consumption of electric current in California in 1921 was 1085 kilowatt hours, compared to an average of 372 kilowatt hours for the United States.

"Perhaps the most notable part of this intensive service has been the development of agricultural uses of power. On over one-third of the lands of California water is electrically pumped for irrigation.

"In 1920 there were 1,470,000 acres under irrigation by water electrically pumped, as against 2,600,000 acres under gravity flow. Over 500,000 horsepower of motors are installed in this service, requiring 17 per cent of the total power generated. Compare this with less than one per cent of the total horsepower generated which goes to agricultural districts in the Province of Ontario under the Hydro Commission's operations.

"Under private initiative there was built in California the first long distance transmission line, 20 miles at 10,000 volts, from San Antonio to San Bernardino, by the San Antonio Power Company.

"Under private initiative in California, the present world's record in long distance transmission at high voltage was achieved by The Southern Sierras Power Company,

539 miles at 87,000 volts, from Mono County, California, to Yuma, Arizona.

"Under private initiative, the highest voltage transmission in the world has been attained in California by the Great Western Power Company, 165,000 volts, 200 miles from the Feather River to San Francisco, and the Pacific Gas and Electric Company is now installing a 190-mile line, to be operated at 220,000 volts, from Pit river to San Francisco, while the Southern California Edison Company is now actually conducting experiments in transmission at 224,000 volts on its Big Creek line.

"So consistently has California led the world in electrical development that it is today the Mecca for visiting engineers and water power commissions from all parts of the world, who are desirous of studying the problems of long distance transmission and distribution of electric power.

"These records have been made under private ownership. I have been unable to learn of a single advance, a single achievement along constructive and progressive lines, that has been made in this country in the electrical industry under public ownership, which stands always to discourage initiative and innovation, to harden whatever it lays its hands upon into fixed, unyielding conformity with bureaucratic routine.

"On this record, we can, I think, submit the issue raised by the proponents of the new movement without fear of the result, once the facts are known."

Mr. Frank W. Smith of New York, president-elect of the National Electric Light Association, was present at the opening session and in response to a general invitation made a few remarks. It was good to hear him tell us that from his observations out here he is convinced that he and others have a lot to learn in the East and, personally, he was glad to take back the message of co-operation.

Another prominent official who attended the convention was Mr. M. H. Aylesworth, executive secretary of the national body, who in his usual forthright fashion hurled a direct challenge at the political agitators and others who would, if they could, beguile the people into cutting their own throats by saddling upon themselves illimitable responsibilities that must spell disaster.

The Water and Power Act question was more thoroughly gone into at the Industrial Conference held under the chairmanship of President W. E. Creed of the Pacific Gas and Electric Company on the closing afternoon of the convention.

Mr. Creed sounded the opening note of warning when he told the convention in very plain terms just what the passage of this proposed measure would mean to the State of California in economic as well as industrial respects. For one thing, he said, the removal of the electric power industry from private to State ownership would mean the loss of eight million dollars annually in State and local taxes, leaving the remaining properties on the tax roll to bear the support of State Government. Already the tax free bonds issued in this State alone had cut off twenty million dollars of revenue from taxation. Mr. Creed thought the actual facts as well as figures involved in the present controversy should be thoroughly well discussed among the people at large, for, as he observed, one of the dangers of democracy was an indifference or apathy toward government. The greatest menace of all, perhaps, would be the distinct blow dealt to individualism, a natural result of government control of industry. Said Mr. Creed, "If we throttle individualism we will sink to the mediocrity of paternalistic government."

Professor Robert Sibley, editor of the Journal of Electricity, gave an able address upon the progress of the electric industry in the West, illustrated by lantern slides.

Mr. Howard F. Beebe, of New York, president of the Investment Bankers' Association of America, recited the resolutions adopted by the investment bankers at their recent convention at Yale. These resolutions warned the people of California generally of the inevitable impairment of investment credit that must result from the adoption of any such measure as the Water and Power Act.

There was a pleasant interlude by Mr. J. A. Teagarden, a prominent fruit grower of Auburn and regional director of the State Farm Bureau, in an address entitled "The Farmers' Interest in the Water and Power Bill." Among the good things said by Mr. Teagarden were:

"If they tried to copy the Ontario Com-

mission we advise the dismissal of the copyist.

"The Ontario Commission couldn't do any constructive work without the approval of the Legislature.

"Power at cost. We had experience during the war producing at cost plus ten per cent and it will take this generation and another to pay the bill.

"If you can't trust one Commission how can you trust another when the appointment is in the hands of one and the same man?

"It is not likely to suppose that the appointing power will name imps of Hades on one commission and angels from Heaven on the other.

"Our State is powerless to create wealth by law.

"It looks to the farmers as if someone had an axe to grind and a job to secure."

Captain John D. Fredericks, president of the Los Angeles Chamber of Commerce, voiced the opinion that government and business did not belong in the same bed. He sent out some home truths about the Los Angeles aqueduct and municipal power enterprise and on the general subject of public ownership he declared his belief that such undertakings must in common justice share the same responsibilities as private undertakings; equally must they pay taxes and submit to supervision.

"If they are going into the game let them go into it like men and play the game," said Captain Fredericks, with emphasis.

The Industrial Conference, which was inaugurated at Del Monte convention last year, is now an established feature of these gatherings. In fact, it evolves the most important deliberations among the leaders of the electrical industry, not only on matters of progress but, also, upon that most important question of public policy.

Another feature of these conventions is the annual banquet which always takes place on the closing night. Upon this occasion Mr. John B. Miller, president of the Southern California Edison Company, acted as toastmaster. What may be described as the keynote speech of the banquet was delivered by Mr. Chester

H. Rowell, member of the California State Railroad Commission, who told of the troubles the Commission is constantly confronted with in endeavoring to do justice to both the public and the public utilities. Upon the subject of rates he declared his belief that low rates are not always in the interest of the people, nor high rates in the interest of the corporation. He believed thoroughly in regulation but thought it should be stopped short of management. Mr. Rowell declared that the prosperity of California is bound up in the electrical industry. He described electricity as requiring the most brains to make and the least brains to use. He defined the interlocking of transmission lines from the Oregon line to the Mexican border as the greatest achievement of the electrical industry in the West.

The new president-elect of the Pacific Coast Electrical Association is Mr. James B. Black, Great Western Power Company, San Francisco. The following were chosen to serve with him:

Officers: First vice-president, L. M. Kauber, San Diego Consolidated Gas and Electric Company, San Diego; second vice-president, Wm. Baurhyte, Los Angeles Gas and Electric Co., Los Angeles; treasurer, J. B. Anthony, General Electric Company, San Francisco.

Executive Committee: A. B. West, Southern Sierras Power Co., Riverside; G. E. Arbogast, Newberry Electric Co., Los Angeles; R. A. Balveri, Westinghouse Electric & Manufacturing Co., San Francisco; E. B. Criddle, Nevada-California Power Co., Riverside; A. N. Kemp, Southern California Edison Co., Los Angeles; R. S. Masson, Pacific Gas and Electric Co., Prescott, Arizona; Robt. Sibley, Journal of Electricity and Western Industry, San Francisco; S. Waldo Coleman, Coast Counties Gas and Electric Co., San Francisco; H. L. Harper, Western Electric Co., Los Angeles; F. A. Leach, Jr., Pacific Gas and Electric Co., San Francisco; H. R. Noack, Pacific States Electric Co., San Francisco; A. E. Wishon, San Joaquin Light and Power Co., Fresno.

So closed the best worth while convention in the history of the electrical industry of the Pacific Coast.

P. C. G. A. Gathering at Vancouver, B. C.

The Pacific Coast Gas Association held its mid-year dinner May 12, in Vancouver, B. C., and the gathering was pronounced one of the most successful in the history of the association. More than thirty members attended from outside points, coming from San Francisco, Portland, Spokane, Tacoma, Seattle, Everett, Bellingham and Victoria, and during their stay in Vancouver they were the guests of the B. C. Electric Railway Company, which controls the local gas company.

President Henry Bostwick, San Francisco, occupied the chair. George Kidd, general manager of the B. C. Electric Railway Company, extended a hearty welcome to the delegates, pointing out the benefits that must accrue from co-operation and fellowship. Mr. Bostwick voiced the opinion that service, coupled with courtesy, would do most towards bringing prosperity to the industry. The addresses on the programme consisted of the following:

"Recent changes in gas standards in Canada and their effect on manufacturing methods," by John Keillor, Gas Engineer, B. C. Electric Railway Company, Vancouver, B. C.

"Misunderstandings on the B. T. U. Question," by Professor G. E. Whitwell, of the University of Washington, Seattle, Wash.

"The complete gasification of coal and its application to existing water gas equipment," by D. J. Young, vice-president Tacoma Gas and Fuel Company, Tacoma, Wash.

"Utilization of gas in house heating," by Leo Kroner, House Heating Engineer, Portland Gas and Coke Company, Portland, Ore.

D. J. Young recited the requirements of any plant which thought to completely gasify coal. He said that it must be able to make gas of any B. T. U. standard between 382 and 600 as the public and commissions had to be educated and as variations had to be taken care of during this process. It was also necessary to use existing machinery. He outlined the Young-Whitwell process at the water gas plant at Everett, Wash., where the ad-

ditional equipment was only ten per cent of the original cost. He said that a saving of forty per cent in the production cost had been effected.

Mr. Keillor's address outlined some of the recent changes in gas standards in Canada. He said that Canada closely followed the British practice and it was probable that the Canadian standard would be dropped still farther in the near future. The present standard in Canada is 450 B. T. U. The department of gas inspection for the Dominion, he said, had power to adopt the newer British standard of selling gas on the term basis any time it saw fit. Going on to the fact of manufacturing methods of reductions in the B. T. U. standard, Mr. Keillor said:

"In Canada the changes I have referred to, the reductions in the so called B. T. U. value of the gas made, have enabled those gas companies who were in a position to do so to adopt more modern carbonizing processes, to increase the yield of gas per ton of coal, thus greatly increasing the gaseous B. T. Us. put into the gas mains, and to reduce the oil used for carburetting or enriching in water gas plants."

Mr. Keillor emphasized the necessity of adopting a new type of burner capable of use with lower B. T. U. gas.

Mr. Leo Kroner of Portland recited the experiences of his company, which now does an extensive heating business. He said that gas cost 14 per cent more than hot air heating by the same means. In Portland there were 6,200 heating customers of which 800 used gas altogether for heating purposes.

Mr. W. G. Murrin, assistant general manager of the B. C. Electric Railway Company, voiced the pleasure of the British Columbia members at the opportunity of being the hosts of the occasion.

During their visit the delegates were taken through the new vertical retort, a plant of the B. C. Electric Railway Company, which is the only one of its kind on the Pacific Coast. Most of the visitors started homeward the following morning.

The Reasons Why Industrial Gas Should Be Sold

By J. H. GUMZ

Industrial Gas Engineer, Gas Sales Department

Years ago, when the gas industry was in its infancy, the principal use for gas was in lighting, and although this business has decreased somewhat it still is a large factor in our operations. During the lighting hours, on an average about three out of the twenty-four, the distribution systems were used and the remainder of the time this equipment stood practically idle. Imagine a business with a large amount of capital tied up in gas holders, plants and distributing systems making fullest use of them about ten per cent of the time! That was the situation when gas lighting had its greatest development. So, it was only a short time before it was realized that if the gas companies were to have an adequate return on their investment it would be necessary to apply gas to other uses.

This brought about the use of gas for cooking, and every effort was made to develop it to the fullest extent. The consumption so gained helped the operation of the plants greatly, as gas was used at three different times during the day instead of merely in the evening for lighting. But even this increase in operation brought with it many difficulties, so that many plants found that instead of having a peak demand for three consecutive hours of the day they now had a like demand during three different periods, namely, for the breakfast, noon and evening meals. Often this necessitated such increases in the system as a whole that the utility operator was no better off than at first. With but little improvement, such is the condition of the majority of gas companies in this country today.

During the war, and directly after, cost was seldom considered when anything was to be accomplished, and as a result it has been forcibly brought home to us that we must now make up for our prodigality.

To do this we must make our business, whatever it be, yield us a maximum return, and we must operate it at a minimum expense. So it is that gas companies throughout the country have made careful studies to determine how they can increase their business and income with a minimum amount of effort and expenditure, and it is the conclusion of all that the development of the use of gas for industrial uses is the solution of the problem. Of course gas companies already have some industrial business, but it is mostly business that has come to them without a great deal of effort on the part of the company to obtain it. In fact, much of it is such that gas was the only thing that could be used.

Mr. Samuel Insull, one of the leading, if not the foremost operator of public utilities in this country, said in a recent address: "I think if you make a comparison between the two local public service businesses, electric and gas, you will find that 75 per cent of the quantity of gas supplied goes to retail customers, which is the very smallest and least profitable portion of the business, about 25 per cent being supplied to wholesale customers. Exactly the reverse is the case in the electric light and power business, about 75 per cent of the quantity of electrical energy produced is for wholesale purposes and about 25 per cent for retail purposes.

"If you study the expenses of the various branches of the utility business, leaving out the interest charges, you will find that labor is the biggest item of expense, and the fellow whose business is the most nearly retail is the fellow who suffers the most.

"Therefore, the best thing we can do is to develop our business upon lines that will give us the largest amount of income from the least expenditure of labor, and

that is the value of the industrial gas business of the country, the surface of which I think has hardly been scratched."

With this opinion from such an authority before us it would be well for us to examine into the reasons why the facts are as he states. To begin with, let us take up the question of selling, that is, the adding of consumption to the lines, for gas is the same as any other commodity and must be sold just as coal or flour or clothing are sold. Every time the salesman sells a range, water heater or steam boiler, he is selling gas too, because these appliances are useless unless the proper fuel is supplied. Suppose the average consumption of gas on a water heater and range amounts to, say, five thousand cubic feet per month, or sixty thousand cubic feet per year, then to obtain an additional monthly consumption of half a million cubic feet it would be necessary to sell a hundred installations of ranges and water heaters. To do this requires time and a great deal of effort, and one man may accomplish it in six months if he be exceptionally good. On the other hand, consider a factory with, say, a galvanizing department, which uses some fuel such as oil or coke for heating the kettle containing, perhaps, forty tons of zinc. A maximum of about eighty tons of steel can be galvanized each day in such a plant and usually the operation is on a twenty-four hour day basis, that is, there are three eight-hour shifts. If this work were done with gas instead of oil or coke, the monthly consumption would average well over half a million cubic feet per month, the same as the hundred installations of ranges and water heaters. Suppose a man spent his entire time for two months in getting this business, he could be paid twice what the other man receives and yet the unit selling cost would be less than in the first instance.

But selling is not the only point from which to view this subject. Again consider these same examples; we have on an average about one hundred domestic customers per mile of main and each one has a service and meter, the cost of which in dollars and cents amounts to a goodly

figure. Now, on this basis we could run a mile of main and put in a service and meter equipment for an industrial customer such as was mentioned above. Of course our meter and service would be larger, but even so the unit cost per 1,000 cubic feet of gas sold would be less. This same reasoning applies to the cost of maintenance, meter reading, bookkeeping and all the other phases of the business.

Another point needs special mention, namely, load factor. You often hear this mentioned in regard to the electric industry, but seldom to gas, but it applies, nevertheless. Once more considering our two examples of domestic and industrial customers. The domestic consumer uses gas on an average of half an hour in the morning, half an hour at noon and an hour in the evening, and if there is an automatic water heater that operates perhaps two hours more, making a total of about four hours out of twenty-four in which gas is used. In terms of the electric man, we have a load factor of about 16 per cent, which, if anything, is high. On the other hand, our industrial customer to operate economically keeps his galvanizing kettle hot twenty-four hours a day and every day in the week, and if he works three shifts a day he uses a certain additional amount of gas for heating the steel being galvanized. So his load factor will range from seventy to ninety-five per cent. Think what that means! The gas plant can operate continuously to supply this demand, the distributing system and meters are functioning and none of the equipment is standing idle, so we are operating at a lower cost per thousand and are using our equipment nearer to its capacity. All industrial business does not have such a high load factor, but nearly all has a higher factor than the domestic consumer. If the industrial business is sufficiently diversified the same result is obtained, however, as the one industry was using gas continuously.

These are the reasons, in brief, why "Pacific Service" is endeavoring to increase its industrial gas business to the end that we may operate more economically and, in that way, provide a better return on our investment.

Sacramento Revived the Days of '49 and "Pacific Service" Was There

By G. B. BALDWIN, Special Agent, Sacramento Division

"The days of old, the days of gold, the days of '49." So sang the poet. So sang the aggressive, progressive heroes who made those never-to-be-forgotten days possible. So sang their children and their children's children in the streets of Sacramento during our recent "Days of '49 Celebration."

I believe that the germ from which this great event was conceived was planted last spring by the Women's Congress which took place in Yosemite Valley. They had a '49 camp there which was a splendid piece of pageantry and commemorative work. That thought grew and grew until, like the great oak which from a little acorn grew, it developed into a celebration, a commemoration of heroic acts of sturdy men and women that are mile posts in the highway of human progress. Moreover, this feast of commemoration undoubtedly will be-

come, if not an annual affair, at least a periodical event which will take on an added value as the years roll by.

When the idea was first presented here the questions arose: "Who will handle it?" "How will the money be raised?" "What will the show be?" "How will the crowds, if any, be taken care of?" Finally it was determined that the Chamber of Commerce was the proper fountain head of the celebration. And then was given birth the happy idea that insured success, that put a new brand of co-operation never before found in the world into active, dynamic, irresistible motion and, if I may be allowed to play upon the word, saved the day by a hair's breadth and, I may add also by a hair's length, seventeen feet, count 'em. Yes, the watchword, the slogan of the occasion, was found in that one magical word—"WHISKERS!!!"



This picture was taken in front of "Pacific Service" headquarters at 1100 K Street immediately after the big parade

Whiskers did it. Some one said the '49ers wore whiskers and everyone in Sacramento should also do it. A whiskerino club was formed with a given date to begin their production, public shaving in the shade of the U. S. postoffice, prizes for the most prolific growth by the end of the celebration. When it did not seem that enough were fully impressed with the importance of the "hair crop" a city ordinance was passed to compel the adoption of hirsute appendage. Then came the decision, which, as the Irishman put it, "There is no compulsion, but you must!" A Kangaroo court was established and this court appointed, with the aid of the police, sheriffs and constable departments, a wonderful army of men who simply revelled in the fun of lassoing and handcuffing and bringing before the austere majesty of the court all those who were found lacking the necessary amount of hair to give them the appearance of the traditional '49ers. The works and sentences of this Kangaroo court were simply wonderful. No one was exempted from their operations. Even the Governor of the State, when he appeared at a public function sans whiskers, was treated even as you and I. At first he objected, but finally entered wholeheartedly in all the fun. This was the entering wedge that began to break down that unde-



Division Manager Florence looking dignified



J. O. Tobey as an out-and-out old timer

sirable, non-cooperative word "*they*."

"*WE*" it became, "*WE*" it stayed until success crowned our banners and "*WE*" it will remain until time is no more. All of us began to feel this *our* show, this *our* pleasure, this is *our* job! This *our* failure or success!

Men, women and children, in dress, action and customs and, apparently, feelings, were transported, as it were, by the touch of Aladdin's wonderful lamp in the twinkling of an eye back 75 years. Our streets were metamorphosed by the addition of false fronts to the stores. Log, board, stone and shingle houses and, apparently, tents took the places of wonderful new plate fronts. The old well-known five and ten-gallon beer kegs with boards across for seats, the grocery and furniture stores again had their well-worn chairs and other kinds of sidewalk seats. The long vanished watering trough with its hand pump again came into existence. And yes! The old roller towel, with the broken piece of looking glass and the old comb and hair brush, were all there.

Whatever it was, whether the clothes or the surroundings or the whiskers, we do not venture to say, but it was acknowledged by all that a different feeling, a change of temperament seemed to fill the air. People who had never spoken to each other, people whose lots were cast in different

parts of the city, people who were of a cold austere nature, changed over night. Pleasant greetings among absolute strangers, a clean cut spirit of hospitality, a change to youthful habits, youthful sports, long forgotten games, long forgotten dances, long forgotten courtesies, all came back to make the picture complete. Staid merchants of one side of street running footraces with those on the other side. Tugs of war between rival merchants. Horse shows. The most dignified merchants riding in resuscitated landaus. Hacks with whiskered drivers and the ladies with their gowns of the '49 vintage and their diminutive sun parasols. The stage coach and its six or eight horses with treasure, guarded with the sawed-off gun of old. From a spectacular point of view there has never been such an accomplishment, from the arrival of General Sutter (H. Bosworth) by schooner on the bank of the Sacramento, his attack and capture by the Indians (they were real ones too), his parade up Kay street, the attack of the Sutter Guards upon the Indians and the release of General Sutter and his escort to Fort Sutter.

Then the most wonderful commemorative pageant—with its carefully studied details, its faithful reproduction of olden times, its costumes, its vehicles, its horses, mules, oxen, donkeys! But why try to enumerate? It was one of the greatest parades, most successful in putting over the period it was supposed to represent. There was no falling off in interest from

its first to its last division. Even the original material of the days of '49 was in the parade. It was about two hours in passing a given point and will live in the memory of all who saw it for all time.

Twelve long blocks of men and boys marching four abreast, each one bearded like a Russian. Everyone had whiskers of some kind, from the Abe Lincoln type to the so-called Airedale. Some whiskers!

Every man at the conclusion of this parade was presented with a complete shaving outfit, including safety razor, soap, talcum, bay rum, tooth powder, etc.

There is one event that stands out very prominently and that was the Governor's ball. This took place in the State Capitol and as a reminder of ancient days it was wonderfully carried out. Music and dances and costumes were true to the old ideals and in keeping with the occasion.

During all these stirring times "Pacific Service" was strictly on the job. Every man was a whiskerino and the results on the street cars were sometimes rather startling. Some of the

conductors and motormen wore picturesque slouch hats, full heavy beards, red shirts, overalls stuck in high boots; many carried revolvers in their belts, red handkerchiefs around their necks. We took part creditably in every parade and upheld the glory of our company. That our work was appreciated was evidenced by most complimentary letters received from Arthur Dudley, secretary of the Chamber of Commerce, and Alex. Kaiser, chairman in charge of parades.



"Cap" Baldwin



OUR "PACIFIC SERVICE" EMPLOYEES ASSOCIATION

Mr. Roy Cowles, chairman of the educational committee, announces that the first course of the Commercial Section, "Elements and Application of Practical Electricity," will be ready for distribution shortly. The course is to be issued in two parts—part i relating to "direct current electricity" and part ii, "alternating currents." The course has been designed for students, men and women, members of the Association who are engaged in lines of work not specifically connected with the operation of the electrical properties. The subjects are treated in an elementary manner and are as free from technical terms and mathematical expressions as was possible. The course should be of particular value to employees of the Commercial Department, accountants, warehouse employees, meter readers, clerks, etc., and others who desire a general knowledge of electricity.

The first gas course will be sent to the printer as soon as the commercial course is completed. This course was prepared entirely by P. S. E. A. members and represents the last word in the production, distribution and utilization of gas.

Certificates of scholarship have been prepared by the educational committee for presentation to all Association members who successfully complete any of the educational courses. The certificates are attractively printed. Successful students may well be proud of this.

Shasta-West Side Party

The annual Shasta and West Side party was held on May 27 and was divided into two parts, a picnic at Baird on the McCloud River above Redding and a dinner and dance in Redding.

A tennis match between representatives of Shasta and West Side Sections was the event of the morning. Cowells and Bell of Shasta took the singles honors, while the West Side team won in the doubles. After the tennis match lunch was in order, after lunch races. After the races the crowd adjourned to

the ball park where West Side defeated Shasta to the tune of 7-2.

Then the crowd drifted back to Redding and was greeted by the Pit River band, twenty-three strong. The dance was held at the Pavilion and was kept up until 2 a. m. Mr. Henderson presented a silver cup to the winner of the ball game.

All the events went off as per schedule and many were the guests who afterward sang "S-h-a-s-t-a spells Hospitality."

The Pit Chapter Band

The P. S. E. A. may rightly be proud of the Pit Chapter Band. This organization has grown from a group of 5 men on January 31, of this year, to a first class brass band of 23 pieces. Under the able leadership of W. S. Smith, who is a pipe fitter on the job, an organization, said to be the only one of its type in the West, has been developed. Many of the permanent construction and lumber camps throughout the West have bands composed of workmen on the job, but it has remained for the men on the Pit, with the support of "Jim" Martin, to give to "Pacific Service" the band supreme.

The first public appearance of the band was in Redding on May 27, the occasion being the Shasta-West Side annual party. Every number was well received, not only by the P. S. E. A., but by the town folk as well. Enthusiastic crowds followed them wherever they went. As uniforms, they wore blue serge coats, white duck trousers and "J. M." hats. As they marched they presented an inspiring sight.

Annual Picnic Announcement

San Jose Section will be responsible for the annual picnic this year. The committee has its plans made for putting on the "best picnic ever" at Alum Rock Park, San Jose, July 29th.

For the first time in the history of our picnics we will have a competition by teams of gas men. Other revolutionary ideas have also been to the fore in the decisions of the committee.

The Financial Side of "Pacific Service"

The Company's earnings for the first four months of the current year, which are given below, continue to reflect the steady revival of industry which is everywhere noticeable. Due to the large area covered by its operations and the diversified character of industries served, this Company's sales of electricity and of gas constitute a pretty accurate barometer of general business conditions in Northern and Central California, and the fact that in the four months ended April 30th, 1922, its customers used 8,603,058 kilowatt hours of electricity and 312,860,300 cubic feet of gas more than in the same period of 1921 indicates that the business barometer is rising. Incidentally, recently published statistics disclose that the Company was the third largest producer of electricity in the entire country in the year 1921, besides being one of the six or eight largest artificial gas companies in the United States.

CONSOLIDATED INCOME STATEMENT
(Including operations of Mt. Shasta Power Corporation)
FOUR MONTHS ENDED APRIL 30TH

	1922	1921	INCREASE	DECREASE
Gross Earnings, including Miscellaneous Income	\$13,032,986.56	\$12,815,922.99	\$ 217,063.57	.....
Maintenance, Operating Expenses, Rentals, Taxes (including Federal Taxes) and Reserves for Casualties and Uncollectible Accounts.....	7,905,477.51	8,226,778.62	.....	\$ 321,301.11
Net Income.....	\$5,127,509.05	\$4,589,144.37	538,364.68	.....
Net Interest Charges.....	1,701,246.98	1,643,313.03	57,933.95	.....
Balance.....	\$3,426,262.07	\$2,945,831.34	\$ 480,430.73	.....
Bond Discount and Expense.....	147,120.12	126,100.36	21,019.76	.....
Balance.....	\$3,279,141.95	\$2,819,730.98	\$ 459,410.97	.....
Reserve for Depreciation.....	1,193,947.07	1,023,025.90	170,921.17	.....
Balance to Surplus.....	\$2,085,194.88	\$1,796,705.08	\$ 288,489.80	.....
Dividends Accrued on Preferred Stock (6%).....	828,180.78	699,299.10	128,881.68	.....
Balance.....	\$1,257,014.10	\$1,097,405.98	\$ 159,608.12	.....
Dividends Accrued on Common Stock (5%).....	577,508.19	566,959.43	10,548.76	.....
Balance.....	\$ 679,505.91	\$ 530,446.55	\$ 149,059.36	.....

Our average investment in plants and properties was \$18,293,000 greater in the first four months of 1922 than in the first four months of 1921. This sum represents additional capital which has gone into new hydro-electric plants and transmission

lines and into additions, betterments and extensions necessary to serve the additional demands made on us for service in all departments and virtually on all parts of our system. At the close of April, 1922 we were serving 607,026 customers, an increase of 30,517 in the preceding twelve months and of 8,057 in the first four months of the current year. We still have on our books new construction actually authorized but not completed aggregating about ten million dollars. This program will be substantially increased from time to time, but we believe the business outlook justifies our faith that increasing net revenues will yield a fair return on our additional investment.

AUTOMOTIVE EQUIPMENT IN CALIFORNIA

At the close of 1921 there were 673,830 motor vehicles in California, or more than eleven times the number eight years ago. It is indicative of the wealth and prosperity of this section of the country that although only eighth in point of population, this State ranks fourth in the number of automobiles owned, and another fifty thousand machines would have placed California in second position.

Of the first four states in motor vehicle registration, California leads in ratio of automobiles to population, there being one machine to every six persons, compared with one to eight in Ohio, twelve in Pennsylvania and thirteen in New York, according to the following table:

NAME OF STATE	PERSONS PER MOTOR VEHICLE		MOTOR VEHICLE REGISTRATION	
	1913	1921	1913	1921
California.....	40	6	60,000	673,830
Ohio.....	55	8	36,054	720,632
Pennsylvania.....	100	12	76,178	689,589
New York.....	67	13	134,405	812,031
Entire United States.....	71	10	1,287,558	10,505,660

Pacific Service Magazine

PUBLISHED IN THE INTERESTS OF ALL EMPLOYEES OF THE
PACIFIC GAS AND ELECTRIC COMPANY

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*The Pacific Gas and Electric Company desires
to serve its patrons in the best possible manner.
Any consumer not satisfied with his service
will confer a favor upon the management by
taking the matter up with the district office.*

VOL. XIV JUNE, 1922 No. 1

EDITORIAL

Advocates of the municipal, state or government ownership and operation of public utilities would have done well to attend the convention of the Pacific Coast Electrical Association recently held in Los Angeles. There they would have had the record of achievement in the electrical industry under private ownership and, incidentally, initiative laid before them, and the inspection of it might have given them pause.

They would have found an assemblage of several hundred men prominent in every branch of the industry met for the purpose of deliberating upon its progress and improvement, with the great thought of SERVICE as the ruling factor. They would have heard President West speak of the inter-dependence of all industry, of all classes, of the complex social and economic structure which modern civilization has built up, so inter-related and tied together that no element can be injured or destroyed without weakening the whole edifice. "In a broad sense we have a common destiny and must prosper or pull together," said Mr. West, and then went on to show how this principle must apply particularly and peculiarly to the electrical industry, among whose achievements in California and under private ownership he cited the following:

The greatest interconnected system of power transmission lines in the world, ex-

tending north, south and east over the state border-lines, resulting in betterments as well as economies of service.

The greatest concentrated block of electric power ever made available for public use, tying together over 1,000,000 horsepower in hydro-electric and 500,000 horsepower in steam generating plants.

A universal use of electricity which stands without parallel. In 1921 the per capita consumption of electric current in California was 1085 kilowatt hours as against an average of 372 in the United States!

The first long-distance transmission line. The world's record for long-distance transmission at high voltage.

The foregoing may be classed as the outstanding features of a record of which any Californian may well be proud. The electrical industry is undoubtedly the greatest material constructive force in the world today. And now, forsooth, with all its splendid record open for inspection, the industry in California is charged with having failed to make good and is challenged to show cause why it should not be taken out of the hands of those whose initiative, courage and resourcefulness have landed it in the premier place among the States!

Meanwhile, upon the question of ownership, the fact that the public utilities of the country are really owned by the public and not, as the over-zealous political agitator would have the public believe, by a privileged few male-factors of great wealth, is becoming more obvious every day. Customer ownership which, as everybody now knows, was inaugurated by our company in 1914, has "caught on" to such an extent that it has been adopted by power companies all over the country. Statistics to hand show that eighty-four companies in the United States sold 570,000 shares of stock during 1921 and that the average purchase was seven shares. During the seven year period from 1914 to 1921 the number of stockholders obtained by customer ownership campaigns increased 9,200 per cent, rising from 4,059 in 1914 to 93,550 in 1921, while the number of shares sold increased 600 per cent. Taking our own "Pacific Service" as an example, the record when taken at the end of last year showed that during 1921 \$7,491,550 of

additional First Preferred stock was sold to our customers, making a total of \$25,917,000 disposed of in this manner since the Company first inaugurated the policy of "popular partnership." Today "Pacific Service" is owned by 20,535 stockholders, the average holding per stockholder being 38 shares.

In the United States the total capital invested in electric light and power securities is \$5,000,000,000, of which about one half is in bonds and notes. It is estimated that there are 1,450,000 individual owners of bonds and stocks of these companies. Insurance companies own \$300,000,000 in bonds and the 30,000 banks in the country have invested \$1,700,000,000 in public utility bonds.

That doesn't look much like private ownership!

Here are some observations culled from the public press of the country:

"The public utility company of today takes the public into its confidence much more fully than in the past, so that the public may know what its profits and losses are. It also takes the public much more largely into its corporate membership, the stockholders in such corporations in the United States now running into the hundreds of thousands, *thus distributing their ownership widely among all classes of people.*

"For these reasons, the masses are coming to realize more clearly their own relation to such utilities and the necessity that they shall receive fair treatment at the hands of the public."—*Columbus (O.) Dispatch.*

"The modern tendency in big business is to distribute holdings to as great an extent as possible. If a man has a share in an enterprise he can be fairer in his judgment concerning outlay. He will take the trouble to inform himself as to income and expense and will not insist upon impossibilities."—*Louisville Times.*

Mr. H. Gordon Selfridge, of London, an international figure in the retail commerce world, during a recent visit to the United States discoursed upon the evils of modern government. He said: "Just now there is too much government everywhere, too much of taxes, too many enterprises being carried on by government bureaus.

"Remember that the money used for

these enterprises is the people's money and has to be furnished by taxation. Put these things back where they belong and the result would be that taxation would be reduced and everybody except the office holders satisfied. That government operation rarely is made to pay is shown by the Glasgow tramways. These are being operated in arrears and the deficit supplied from the Glasgow treasury."

IN MEMORIAM

CLYDE W. HORTON

"Alas, that Spring should vanish with
the rose
And youth's sweet scented manuscript
should close."

The Supreme Summons has called from amongst us Clyde W. Horton, Chief of the G. M. Bureau in the Head Office Auditing Department.

With his passing the Company loses one of those earnest and conscientious workers whose sincere endeavors have made "Pacific Service" a living fact and not an empty phrase to catch the ear.

Mr. Horton, only 37 years of age, was stricken with apoplexy on Market Street, San Francisco, late Monday afternoon, June 5th, while on his way home from work. He died an hour later at the Emergency Hospital.

He was graduated from the University of Kansas an electrical engineer. He came to this company from the valuation department of the Pacific Electric Railway Company, of Los Angeles, five years ago.

He was a man who loved his work greatly. Big in stature, broad of shoulder, yet always mild mannered and gentle, he easily endeared himself to those who knew him. His memory is enshrined in their hearts.

"To live in hearts of those we leave behind is not to die."

W. E. APPEL.



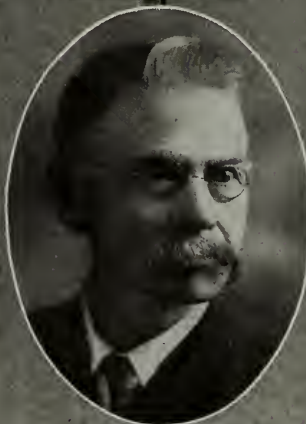
DAVID MATTHEW



E.W. HORTON



JOHN MCCARTHY



JAMES POWER



CHAS. S. BROWN



J.E. POINGDESTRE



A.W. CASSELMAN



JOHN C. McISAAC



ISAAC L. KENDIG

The "Pacific Service" pension roll. The above portraits are of nine former employees whose long and faithful service has entitled them to honorable retirement.

The "Pacific Service" Roll of Honor

Heading the honor roll of "Pacific Service" are 64 names of men whose long and faithful service to our company has been rewarded by their honorable retirement with provision for their declining years under our company's pension system, which underwent complete revision last fall.

In the last four issues we presented the portraits of thirty-six men whose names are upon our company's pension roll, accompanied by their several service records. In doing this we were actuated by a desire to make our readers acquainted with these men and their records and to point out what is generally recognized in all up-to-date business enterprise, namely, that long and faithful service shall have its reward.

Opposite this will be found the fifth installment of nine portraits of our company's pensioners arranged according to terms of service. These are:

David Matthew. 70 years of age, having been born June 21, 1852. Entered the service of the San Francisco Gas Light Co. September, 1876, and at the time of retiring on a pension, April 1, 1914, was employed in San Francisco Division.

E. W. Horton. 67 years of age, having been born May, 1855. Entered the employ of the San Francisco Gas Light Company in March, 1888, and at the time of retiring on a pension, July 1, 1917, was employed at the Potrero.

John McCarthy. 70 years of age, having been born March 18, 1852. Entered the service of the Pacific Gas Improvement Co. in 1892. Retired on a pension July 1, 1917, at which time he was employed in Redwood District.

James Powers. 73 years of age, having been born January 23, 1849. Entered the service of the Edison Light and Power Company in September, 1893 and retired on a pension November 1, 1919, at which time he was employed in San Francisco Division.

Chas. S. Brown. 66 years of age, having been born October 19, 1855. Entered the service of the San Francisco Gas Com-

pany in November 1893 and retired on a pension March 1, 1918, at which time he was employed in San Francisco Division.

J. E. Poingdestre. Entered the employ of the Nevada County Electric Power Company in 1894 and at the time of retiring on a pension January 1, 1918, was manager of Marysville District.

A. W. Casselman. 57 years of age, having been born January 18, 1865. Entered the service of the Central Electric Railway, Sacramento, in November, 1894, and at the time of retiring on a pension, March 1, 1920, was employed in Sacramento Division.

John C. McIsaac. 71 years of age, having been born March 27, 1851. Entered the service of the South Yuba Water Company in October, 1894, and at the time of retiring on a pension, May 1, 1921, was employed in San Joaquin Division.

Isaac L. Kendig. 71 years of age, having been born November 2, 1850. Entered the service of the Oakland Gas, Light & Heat Co., in February, 1895, and at the time of retiring on a pension, October 1, 1919, was employed in the Electric Department of the Alameda County District.

Tidings From Territorial Divisions

East Bay Division

Four new industries and one new million dollar bank are included in the record of Oakland's progress for one week. The coming of the Gay Engineering Company, headed by Norman Gay, of Los Angeles, a company which eventually will employ more than 250 men, has just been announced through the New Industries Committee of the Oakland Chamber of Commerce and concludes a rather remarkable week of advance.

Prior to this announcement the New Industries Committee told of the decision of the Star Motor Company of California to immediately construct a mammoth western plant here; of the decision of the Evinrude Motors Company of Milwaukee to make Oakland its western distributing point, and of the Tuttle Food Products Company, which will manufacture in a plant just leased at 1367 Willow street.

Oakland's new financial institution is the Commercial Trust and Savings Bank, headed by S. E. Biddle. This bank has leased the Athens Hotel property and, according to officials, plans to be operating within ninety days.

The Gay Engineering Company has purchased from the California Cotton Mills three acres at the southeast corner of High and East Tenth streets, and will at once build a plant on that site in which they will manufacture refrigerating equipment. The plant is to be one of the most modern of its kind in the West. The factory, when completed, will represent an investment of \$350,000.

The Tuttle Food Products Company is headed by J. L. Tuttle, formerly with the Carnation Milk Company of Seattle, and the Canyon Milk Products Company. This company plans to manufacture 3,500 pounds of cottage cheese per day.

Oakland bank clearings for the month increased nearly 21 per cent over those of the corresponding month of last year, the totals being \$54,115,848 for April, 1922, as against \$44,761,995 for April, 1921.

Preparations are being made by Albert La Cunha for the establishment of a soap manufacturing plant with a capacity of 1,000 pounds a week for the manufacture of a special mechanics' soap on the formula for which La Cunha has been working for years. For some time past La Cunha has placed his soap on the local market in small quantities, but he is now preparing for its wholesale manufacture.

La Cunha's soap, which is of a cocoanut oil base and which, he claims, contains no grit or acid substance other than lemon, has received the recommendation of local dealers and users. The soap is designed so that its use is possible without water.

As the sale for the soap increases his factory space will be enlarged. It is believed here that the industry will develop into one of the largest in Hayward.

The building boom in Oakland will result in permits for the construction of buildings costing over \$2,000,000 being issued this month, according to an estimate by our city building inspector.

The town of Alvarado recently celebrated the 29th anniversary of its success as a salt producing community. The Alvarado Salt Company, which was founded in 1893 by H. C. Howard and which is now known as the Continental Salt Company, has grown from a venture netting only a few thousand dollars a year to an established business which brings returns of \$2,500,000 annually.

The Alvarado-Newark salt refineries are destined to become famous the world over, as tests have proven that the salt taken from the waters of the San Francisco bay is of the highest quality and is most easily obtained.

Echoes from Walnut Creek

"Hello central, give me *three, seven* Walnut Creek, please."

"This is the President of the Chamber of Commerce speaking; what can I do for you?"

"I'm looking for a nice little 'home town' somewhere, tucked away among the hills, and surrounded by a picturesque and fertile country, yet of easy access, by rail and modern paved highways, to the bay cities. Do you know of such a spot?"

"Well, it is odd that you should be giving us an order that is so easily filled, just come right along over here and let us show you around; we have all that you ask for and something to add."

"Glad to see you: shake. Be seated, and let us talk it over before you are shown around. We have both walnuts and a creek, so that will qualify and justify an appropriate name for our town. If you have a taste for literature our dear old guardian angel, Mount Diablo, will furnish you with Indian legends and Spanish romance. If an eye for the beautiful, ascend via the scenic boulevard to the peak, and as you stand looking off toward the Golden Gate you begin to unfold a panorama of wonderful beauty, seldom equalled; never excelled."

So much for our little town as a residential attraction. Commercially it is beginning to bring capital here. We have two railroads, the San Francisco and Sacramento Electric, and the Southern Pacific, also the finest paved highways in the state. The Pacific Gas and Electric Company lights our streets and homes and furnishes power for many industries. The Standard Oil has a large station which delivers its products at your door. The Spencer Lumber Company in its new plant, has a large supply of building material ready for new home builders. The Walnut Growers' Association of California has one of its plants for sorting, packing and shipping, located here, and during the past season shipped \$130,000 worth of walnuts. The Kirsten Packing Company has an extensive establishment here which cans over 25,000 cases of fruit and vegetables per year. In addition to this the electric road shipped east over 300 carloads of fruit.

Our main street, which is newly paved from curb to curb and lighted with electroliers, is lined with banks, stores and garages, supplying every need that a needy people may need. We have good schools, up-to-date in methods and efficiency, that prepare for the University, and a church for each of five denominations.

Glad to have met you, come again and bring your friends.

Contra Costa County leads all counties in the United States in its per capita buying power. This fact was divulged after the Dartnell Corporation of Chicago had accomplished a national survey.

The per capita purchasing power of Contra Costans is \$5,418. The next highest has \$3,300. Manufactured products are valued at \$281,943,251. The value of crops is \$10,044,871. There are 6,528 automobile owners in the county.

The per capita purchasing power of other counties in California show San Francisco \$824, Los Angeles \$512, Marin \$210.

E. B. D.

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San Joaquin Division

Stanislaus County crops will yield in the neighborhood of \$50,000,000 this year, and in the report submitted by the County Horticultural Commissioner it is estimated that this startling figure will be surpassed by a good margin. This estimated figure is \$10,000,000 in excess of last year's output, which was the best year in the history of the county, and will be more than double the value of the products of 1919. All crops are slated to be bumpers and are in such good shape as to forecast the greatest era of prosperity in the county.

Waterford, located about twelve miles east of Modesto, has been a keen bidder for the Knights of Pythias home for the aged and infirm and has been favorably reported upon by the committee which had the matter in hand. However, final decision in the matter has been deferred following last minute proposals made by the cities of Santa Rosa and Santa Cruz, which offers carry valuable property and

a cash bonus for the institution. The Waterford people feel that their offer of eighty acres in the heart of the Waterford Irrigation District is hard to surpass and that in the final judgment the Pythian home will be theirs.

Preliminary steps in the proposed organization of a water conservation district have been taken with the forming of the San Joaquin River Conservation Association which will investigate the annual flow of the San Joaquin River and its tributaries, the possible quantity of water that can be economically stored from the runoff of flood water and, in fact, all phases involved in a project of this kind. The proposed district will roughly include in its boundaries approximately 900,000 acres of land, including West Stanislaus and West San Joaquin Counties, Madera and Mendota.

A matter of vital importance to the success of the Modesto and Turlock Irrigation Districts has come up for the consideration of the people. These two districts are at present engaged in the construction of a storage dam and power house which when completed will be capable of developing approximately 80,000,000 k. w. h. per year, and following a request from the districts the Pacific Gas and Electric Company has offered to purchase the entire output of this plant at an approximate figure of \$.004 per k. w. h. The districts, meantime, have each employed a consulting engineer to report as to the most feasible plan to be pursued in disposing of this power, and it is of interest to note that the engineer for the Modesto Irrigation District in his report to the Board of Directors has urged the wholesaling of the power to the Pacific Gas and Electric Company and that the engineer of the Turlock Irrigation District in his report to the Turlock Board has opposed the plan for wholesaling the energy, and proposes as a means of disposing of the surplus power the construction of a fixation plant to produce fertilizer. The present plan is to give the people the facts and permit them to decide as to the final disposition of the power.

In March, 1922, the trustees of the City of Sonora passed a resolution authorizing street improvements in the amount of \$75,000. The contract for this work has been let to J. E. Johnson of Stockton and covers street paving for 51 city blocks. It is expected that this paving work will be completed within four months. The paving will tie in with the new Jamestown-Sonora highway which will terminate at the Sonora city limits. Paved streets in any city represent a great asset, and the City of Sonora can well be congratulated upon this great step forward along the road of progress.

S. J. D.

Colgate Division

Colusa is now protected from the danger of flood from the badly caving banks of the Sacramento River at Arnold's bend just north of town. The Woods Bros. current retards have shifted the canal well away from the levee and road.

This is the first work of this kind that has been done on the Pacific Coast and prominent engineers from all over the West have been visiting the work.

The following is the report of County Horticultural Commissioner H. P. Stabler upon the tree and vine planting in Sutter County for this season, and also upon the work of inspecting done under the supervision of his office:

Total trees, plants and vines inspected and planted in Sutter County during season of 1922, 831,171.

Condemned.....	71,339
For replanting purposes.....	20,667
For nursery purposes.....	27,753
For new planting.....	710,412

831,171

Never is a prophet known in his own land. Neither is a walnut tree, for right in Oroville grows the largest English walnut tree in California, according to horticulturists of this section. The miracle tree is located on the property of Anna G. Hotman on Third avenue, and has a spread of eighty feet. Its height is also said to be over eighty feet. The trunk measures four feet in diameter and the annual yield is \$100.

The new townsite of "Hemp," near Rio Oso, is being laid out and the streets graded. The location is ideal, being on line of the Sacramento Northern railroad and the tract is of the finest land with large oak trees growing on the same. It is stated that the hemp company will build a large mill there if sufficient acreage is planted to justify the venture. With the planting of the hemp and the operating of the mill many men will be employed.

Marysville and Yuba City are to have another big plant for the processing of fruits and vegetables.

The King Food Products Company of Oregon has announced its intention of establishing a branch plant in this community, work on it to begin next fall in order that it may be in operation during the 1923 season.

The new plant will be an important addition to the industrial life of the community as it will be a dehydration project, which will mean the establishment of a market here for some of the fruits not now produced here in quantity.

From 800 to 1,000 acres of land near Arboga on the old Messick ranch and lying north of Plumas Lake has been purchased from the Fleishhacker interests by Dr. S. W. B. Langdon, a Stockton capitalist, the purchase price being stated at \$200,000. Mr. Langdon expects to plant a portion of the land to orchard.

The general impression is that a peach tree does not bear after it grows old, but the Walton orchard south of Yuba City does not bear this out. The orchard there was planted over thirty years ago and is still bearing good crops. This season the trees are full of peaches which will have to be thinned extensively.

Rio Oso, Sutter County, May 11.—Deer, which find their habitat the year round in the Bear River bottom near here, are feeding on the crops of the ranchers, according to reports received here.

Several ranchers have reported finding herds of from 10 to 20 deer feeding on their first cuttings of alfalfa. The deer

have ventured farther into the more developed districts as a result of the high-water in the creeks and sloughs.

It is estimated that there are 400 deer within a radius of two miles of Rio Oso, a new town which is the center of the projected hemp industry. They make their homes in the dense growth along the Bear river bottoms, virgin territory lying in the heart of the Sacramento Valley.

E. C. J.

Shasta Division



Engineering extraordinary, to say nothing of photography!

Readers of PACIFIC SERVICE MAGAZINE may be interested in knowing how natural difficulties are being overcome on the Pit River Development.

The accompanying illustration shows a party of engineers running a line through a heavily timbered section. Instead of cutting down the timber, a "husky" is taken along who pulls the tree to one side while a "shot" is being taken, thus saving time and avoiding destruction of timber.

M. P. W.

North Bay Division

The Must Hatch Incubator Company, the largest electric hatchery in the world, has made application to this company for increased service facilities to take care of an addition of 100 h. p. to its present load. This will give the Must Hatch a total connection load of about 400 h. p.

On a basis of 1,000 baby chicks per h. p., the Must Hatch will be equipped with a hatching capacity of 400,000 chicks per setting. This is the third season of electric incubation for this company, the success of which is reflected in the application above mentioned.

Mr. L. A. Bourke, proprietor of the Must Hatch Company, will leave soon for an extended trip to Europe, and on his return will begin at once getting his plant in order for what he anticipates to be the record year of his business.

H. G. R.

West Side Division

New in use and of interest to all readers of the PACIFIC SERVICE MAGAZINE is the alfalfa chopping machine recently installed at Hamilton City by the Sacramento Valley Sugar Company. This machine driven by a 50 h. p. motor is used to chop up the alfalfa grown on their land. Directly connected to the machine is a blower which blows the alfalfa into cars. Approximately one-third more of the alfalfa can be put into an ordinary box car using the chopper and blower than when the hay is baled, and in about half the time. The Sugar Company is loading about five cars a day, each with from 26 to 30 tons of alfalfa, and has loaded by this process and shipped to date fifty cars. For the past several years the above company has had its holdings at Hamilton City in alfalfa. This land was formerly planted to sugar beets but stopped producing that product. Growing alfalfa on land puts nitrogen into the soil and the Sugar Company believe that after about two more years it can produce sugar beets again on the land.

A 30 h. p. rice load has recently been added to our system at Corning. Very good results have been obtained with rice near Red Bluff and Willows, but this is

the first venture in the product near Corning and is more or less an experiment. If the venture is successful we can expect additional rice load in that locality in 1923.

West Side Division has added ten new electric ranges to the cooking load during the past month, one at El Camino, four at Corning and five at Orland.

R. W. M.

San Francisco Division

NEW BUSINESS DEPARTMENT

During the month of May the New Business Department closed some very attractive contracts as follows:

The sixteen-story building of Moore and Watson, wholesale dry goods, Fremont and Mission, 100 h. p.

Bake Rite Oven Company, 1st and Howard, manufacturers of ovens and bakery products, 100 h. p.

Progress Printing Company, 1st and Howard, about 50 h. p.

Leighton's Press, Howard, between 5th and 6th, 75 h. p., new building.

Francis & Valentine, S. W. corner 8th and Natoma streets, 75 h. p., new building.

Snyder Brothers, knitting mills, S. E. corner 8th and Howard, 100 h. p., new building.

St. Francis Hotel changed its steam equipment, operating elevators etc., over to electric drive, 400 h. p.

Sussman-Wormser Company, S. F. Warehouses, Berry, between 3rd and 4th streets, increased load 65 h. p.

Matson Navigation Company, pier 30, installed 125 h. p. for charging purposes auto trucks. Strictly new business, worked up by New Business Department.

Laid out plans for generator on steam boat *Argonaut*, Meigs Wharf. This boat when docked used Pacific Gas and Electric Company power, new business load.

Secured two more agricultural gardens, closing windmills and gasoline engines by installing electric power. This leaves only eight gardens approximately, who still cling to ancient type windmill for pumping water.

In addition to San Francisco division new business they also closed some two hundred applications for outside divisions.

Those worthy of note include the Fontana Food Products Co., South San Francisco, 200 h. p. Also, the Pacific City Amusement Park and Bathing Beach, 3,000 feet long, just being completed at Coyote Point, San Mateo. The Park has already signed up for some 125 h. p. as well as 250 k. w. in lighting service.

GAS DISTRIBUTION DEPARTMENT

Heretofore gas meters from outside districts were shipped by rail to the San Francisco Division for repairs necessitating the labor and expense of hauling to the car and from the car on arrival at their destination. The same procedure following when work is completed. This double handling factor has been eliminated by the use of motor trucks and a direct haul is now being made.

To do this efficiently and economically and get the maximum earning power from truck investment, the meters are not returned by us until such time the districts enroute have accumulated a sufficient number of meters to be repaired, which we pick up for our return trip, thereby killing two birds with one stone.

E. G. C.

TRANSPORTATION DEPARTMENT

The following additional automotive equipment has been purchased in the past month and is now in operation:

Electric Distribution.—One $3\frac{1}{2}$ -ton Pierce-Arrow truck. Gas Distribution.—Two Dodges, express bodies, and one Ford, express body.

On May 31st there were 138 units in operation. They consumed 10,637 gallons of gasoline and 342 gallons of oil.

On Wednesday evening, May 3, a dinner was tendered the Head Office sales force by the New Business Department of San Francisco Division. There were some eighty people present, including the heads of departments of the San Francisco Division.

Mr. Bostwick, manager of San Francisco Division, acted as toastmaster. He stated the purpose of the dinner as being a sort of a get-acquainted meeting and then turned the evening over to Mr. Fisher, vice-president in charge of sales, who gave some pertinent facts as to what

"Pacific Service" must accomplish in the way of sales of k. w. h. and cu. ft. of gas in order to continue our growth and add the necessary sales to keep pace with our new hydro-electric developments. He stated that this could be accomplished by the concerted effort of everyone connected with the New Business Department.

Mr. Fisher introduced Mr. Crawford, manager of the Gas Sales Department, who told how the sale of gas was increasing year by year and predicted that our gas business would double in the next six years. He introduced as members of his department Mr. Gumz, Industrial Gas Engineer, and Mr. Naylor, Gas Heating Engineer.

Mr. Ray, manager of the Electric Sales Department, was then introduced by Mr. Fisher. Mr. Ray gave an idea of what had been happening in the past two years, due to industrial depression, and stated plans for the future. Mr. Ray introduced Mr. Sandoval, Industrial Illuminating and Heating Engineer, and Mr. Strauch, Electric Range and Water Heater Specialist. Mr. Neiman, Research Engineer, another man of the Department, was not present.

Mr. Sutherland, manager of the Commercial Department, outlined very clearly the duties of his Department. Mr. Sutherland introduced Mr. Campbell, who is in charge of prices and requisitions, Mr. Fay, who handles the sales advertising and statistics, and Mr. Ruess, who handles the line extensions.

GAS GENERATION DEPARTMENT

Work has begun on the rebuilding of No. 1 relief holder at Potrero Plant. The first cargo of tar from the pit, of which there is about 1,500 barrels, sailed away on the S. S. *Santiago*, June 14. An exhaustive research into the subject of the removal of naphthalene from the gas is being carried on by Mr. F. C. Jones, chief chemist, and his assistants, under the direction of Mr. West, research engineer.

Number one generator at Metropolitan plant has just been overhauled and the primary shell rechecked, putting this machine in first class condition for another two or three years hard work.

J. W. DICKEY.

Honor to James Cunningham

On June 10 the employees of the Potrero Gas Plant and their families gathered in their assembly hall which, ordinarily, is the oxide mixing house. On this night it was overhauled and a banquet was served to 280 people besides 34 men on watch throughout the plant. The occasion was in honor of Mr. James



Mr. James Cunningham

Cunningham, foreman mason, who has completed fifty years of service and retires on July 1.

Mr. J. M. Dickey, Engineer of Gas Generation, acted as host and toastmaster. The guests of honor were the entire Welfare Committee and the Executive Committee of the P. S. E. A. Quite a number of the old timers now on the "Roll of Honor," pensioners of San Francisco Division, graced the occasion with their presence.

Mr. H. Bostwick, our genial Division Manager, was present and paid his congratulations and good wishes. Mr. W. S. Yard, vice-president, when called upon, stated that he was proud to call himself a graduate of the Potrero plant.

While the guests were being served by Jacobus Kraut, our plant chef, and a dozen picked white-coated waiters, a program of entertainment was rendered entirely by "P. S." people or their children. The opening consisted of a monologue by Mr. Harry Spencer, who can write verses, sing songs, deliver orations, or minister to a palpitating pump with equal ease. He left the audience in a merry mood. Mr. R. Keating, of the Collection Department, sang

"Old Pal." Mr. H. Flynn, our versatile P. S. E. A. assistant secretary, sang "That Old Irish Mother of Mine," accompanied by Mrs. Flynn at the piano. Mr. Joseph Cunningham played a solo on the piano, likewise Mr. L. Nelson on his overseas accordion. The Noone children played the piano, violin and sang. Mr. Thompson from the New Business Department told stories as he only can tell them. The Chairman of the Welfare Committee, Mr. F. A. Leach, Jr., spoke and, in turn, introduced each member of the Committee, who all extended their congratulations and good wishes to "Jim" Cunningham. Mr. J. A. Britton grew reminiscent with Jim on coal gas days, the wonderful changes that have taken place in our people, manner of dress, etc., and remarked that Powell Street of the future would indeed be startling, to say the least, if present reductions and abbreviations were carried on.

A huge cake, presented by the "Lamp-black Gang," fashioned after the new ten-million holder in process of construction, was duly cut and served along with forty-two cakes contributed by the employees' wives and mothers. Superintendent D. J. McCarthy then introduced plant men with twenty-five years of service or more, and their fine appearance as they responded caused Mr. A. F. Hockenbeamer to state that he had a mind to ask for a promotion out of the treasurer's office into this seaside plant. Mr. Patrick Finnegan, with more than 35 years' service to his credit, was introduced as the silver-tongued orator of the Potrero Plant and did himself proud, indeed, in his speech, touching upon the wonderful spirit of harmony and co-operation that exists in the ranks of the "Pacific Service" organization and the splendid pension plan of the Company that makes it possible for Mr. James Cunningham to retire on a pension greater than perhaps nine-tenths of the wage earners of this State earn. In closing, Mr. Finnegan, in behalf of his associates, presented Jim Cunningham with a beautiful watch and chain. The gift was accepted with words of sincere gratification and pleasure. To the strains of "Auld Lang Syne," the guests arose and the floor was cleared for dancing, which continued until midnight.

J. A. J.



BONDS OF INTEGRITY

BONDS, like men, possess character. Certain issues, for example, command respect by reason of their high moral integrity. They meet every obligation on the appointed day. They fulfill every promise; they live up to every expectation. They are known and sought for their eminent merit.

Conservative-minded investors recognize the excellent character of bonds sponsored by Blyth, Witter & Co. They respect the standards by which we establish the permanent safety of every issue which bears our recommendation.

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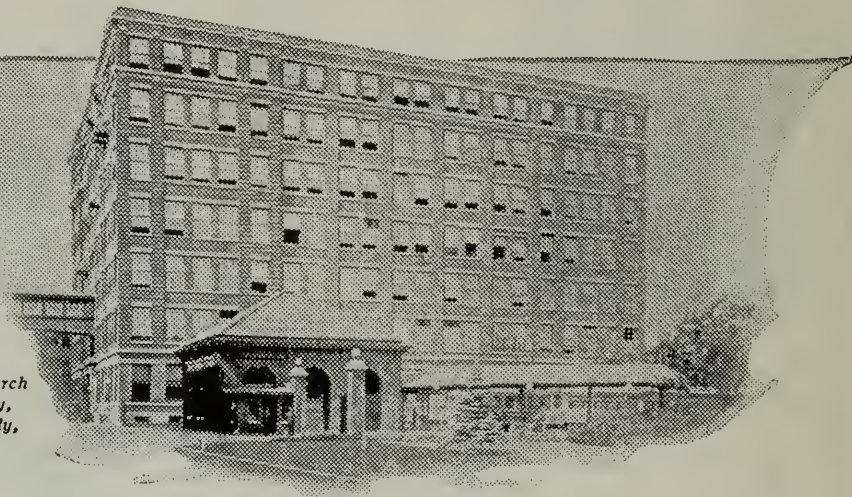
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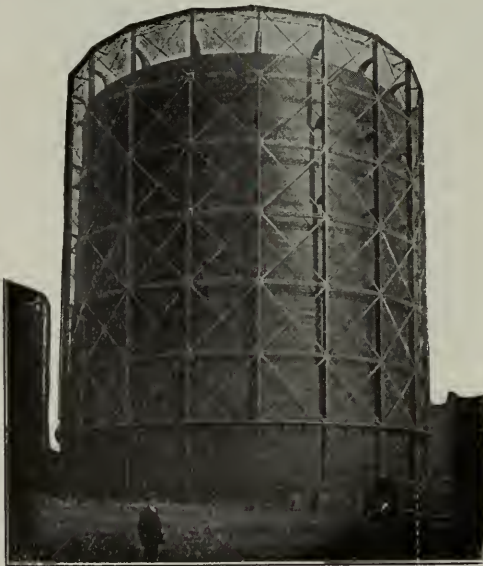
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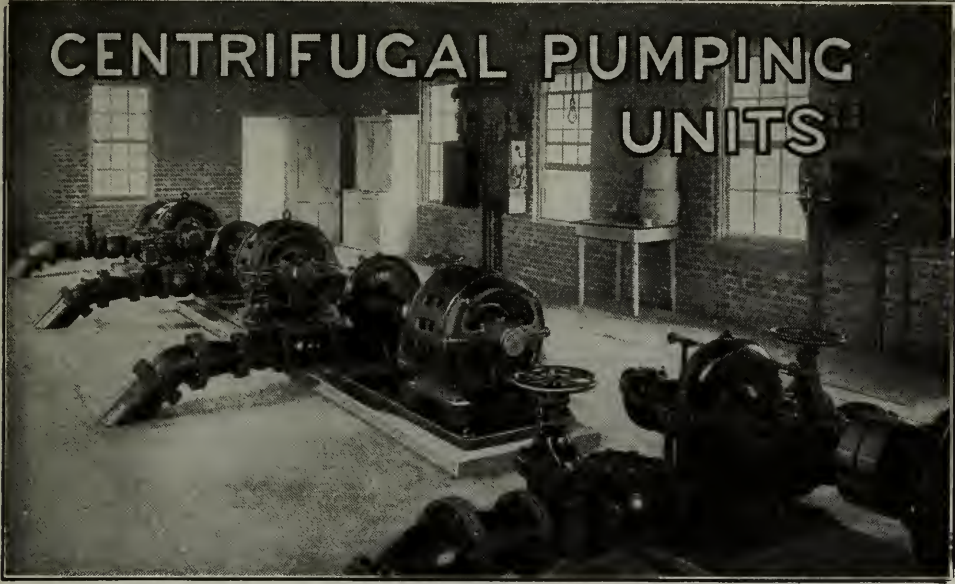


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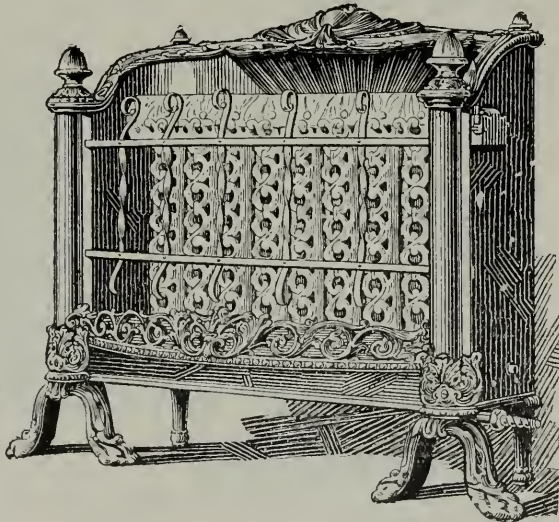
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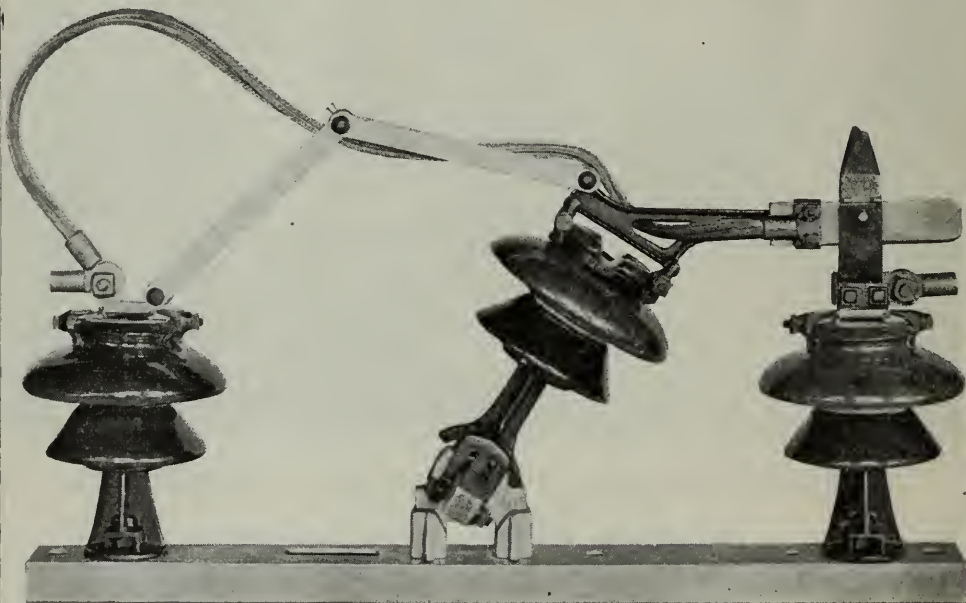
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other types we had to sectionalize the line in order to use a blow torch to thaw the contacts, etc., of the switches."

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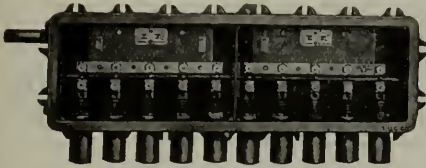
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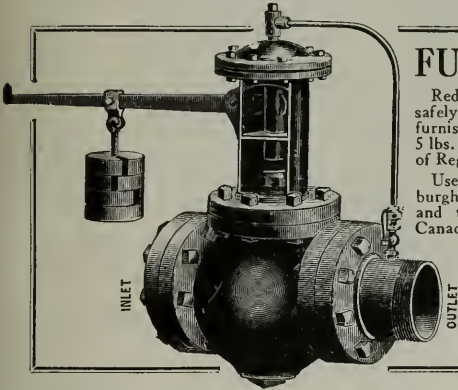
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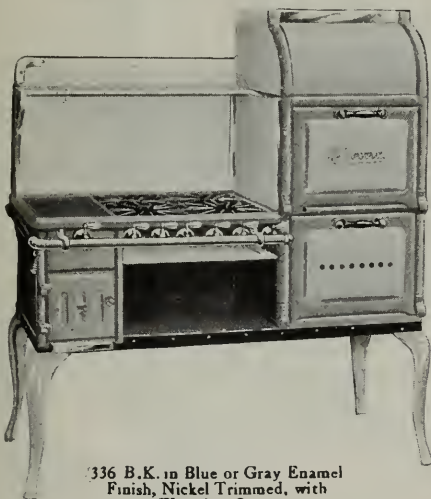
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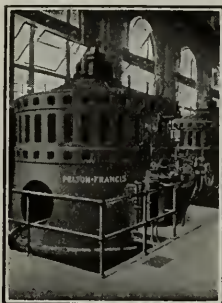


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1,715,959 Total Population Served in Thirty-six of California's Counties

CITIES AND TOWNS SERVED BY COMPANY

	DIRECTLY		INDIRECTLY		TOTAL	
	No.	POPULATION	No.	POPULATION	No.	POPULATION
Electricity	170	1,117,541	61	156,411	231	1,273,952
Gas	58	1,128,216	2	8,600	60	1,136,816
Water (Domestic)	18	61,719	8	15,488	26	77,207
Railway	1	65,908			1	65,908

Place	Population	Place	Population	Place	Population	Place	Population
Alameda.....	28,800	El Verano.....	400	Miridian.....	200	San Leandro...	5,703
Albany.....	2,462	Emeryville.....	2,390	Millbrae.....	300	San Lorenzo...	500
Alvarado.....	1,000	Escalon.....	600	Mills.....	400	San Martin....	250
Alviso.....	517	Esparto.....	200	Mill Valley....	2,554	San Mateo.....	5,979
Amador City..	377	Fairfax.....	250	Milpitas.....	300	San Pablo.....	500
Anderson.....	750	Fairfield.....	1,008	Mission San ..	500	San Quentin...	3,000
Angel Island..	507	Fresno.....	45,086	Modesto.....	9,241	San Rafael....	5,512
Antioch.....	1,936	Fall River Mills	300	Mokelumne Hill	900	Santa Clara....	5,220
Aptos.....	300	Farmington....	300	Monterey.....	5,479	Santa Cruz....	10,917
Arbuckle.....	900	Felton.....	300	Morgan Hill....	646	Santa Rosa....	8,758
Atherton.....	500	Folsom.....	2,000	Mountain View	1,888	Saratoga.....	500
Auburn.....	2,289	Forestville....	250	Niles.....	200	Sausalito.....	2,790
Barber.....	500	Gilroy.....	2,862	Napa.....	6,757	Sebastopol.....	1,493
Belmont.....	375	Glen Ellen....	1,000	Nevada City....	1,782	Shasta.....	200
Belvedere....	616	Gonzales.....	500	Newark.....	500	Shellyville....	200
Benicia.....	2,693	Grass Valley..	4,006	Newcastle.....	750	Sheridan.....	250
Ben Lomond...	400	Gridley.....	1,636	Newman.....	1,251	Smartsville....	300
Berkeley.....	56,036	Grimes.....	500	Niles.....	1,000	Soledad.....	400
Biggs.....	683	Groveland....	500	Novato.....	400	Sonoma.....	801
Bollinas.....	200	Guerneville..	800	Oakdale.....	1,745	Sonoma.....	1,684
Brentwood....	400	Hamilton City.	250	Oakland.....	216,261	South San ..	
Broderick....	700	Hammonton...	500	Oakley.....	200	Francisco.....	4,411
Burlingame...	4,107	Hayward.....	3,487	Occidental....	600	Standard.....	500
Byron.....	350	Hercules.....	373	Orland.....	1,582	Stanford Uni-	
Campbell.....	600	Hillsborough..	931	Oroville.....	3,340	versity.....	2,700
Capitola.....	300	Hollister.....	2,781	Pacheco.....	300	Stockton.....	40,296
Carmel.....	638	Honcut.....	500	Pacific Grove..	2,974	Suisun.....	769
Cement.....	1,000	Hughson.....	250	Palo Alto.....	5,900	Sunol.....	350
Centerville...	1,000	June.....	1,000	Paradise.....	300	Sunnyvale....	1,675
Ceres.....	637	Irvine.....	1,000	Patterson.....	694	Sutter City....	250
Chico.....	9,339	Jackson.....	1,601	Penn Grove....	200	Sutter Creek ..	920
Colfax.....	573	Jamestown....	750	Penryn.....	250	Tehama City..	196
College City..	250	Kennett.....	464	Perkins.....	300	Tiburon.....	400
Collinsville...	200	Kentfield....	500	Petaluma.....	6,226	Tracy.....	2,450
Colma.....	1,500	Kenwood.....	300	Piedmont.....	4,282	Tres Pinos....	300
Columbia.....	200	Keswick.....	200	Pike City.....	200	Tuolumne....	1,500
Colusa.....	1,846	King City.....	1,048	Pinole.....	967	Turlock.....	3,394
Concord.....	912	Knights Ferry.	200	Pittsburg.....	4,715	Vacaville.....	1,254
Cordelia.....	300	Knights Land-		Pleasanton....	991	Vallejo.....	21,107
Corning.....	1,449	ing.....	400	Port Costa....	900	Vina.....	300
Corte Madera.	607	La Grange.....	200	Princeton.....	300	Vineburg.....	200
Cotton.....	203	Larkspur.....	612	Red Bluff....	3,104	Walnut Creek.	438
Cottone Wood.	500	Lathrop.....	600	Redding.....	2,962	Warm Springs.	200
Coyote.....	200	Lewiston.....	200	Redwood City.	4,020	Waterford....	250
Crockett.....	1,500	Lincoln.....	1,325	Richmond.....	16,843	Watsonville...	5,013
Crow's Landing	300	Live Oak.....	300	Rio Vista.....	1,104	Wheatland....	435
Daly City.....	3,779	Livermore....	1,916	Ripon.....	500	Williams.....	650
Danville.....	400	Lomita Park..	600	Riverbank....	200	Willows.....	2,190
Davenport....	300	Loomis.....	500	Rocklin.....	643	Winters.....	903
Davis.....	939	Los Altos....	500	Rodeo.....	300	Woodland.....	4,147
Decoto.....	300	Los Gatos....	2,317	Roseville.....	4,477	Woodside....	300
Del Monte....	300	Los Molinos..	200	Ross.....	727	Yolo.....	350
Denair.....	200	Madison.....	300	Sacramento....	65,908	Yuba City....	1,708
Dixon.....	926	Manteca.....	1,286	Salinas.....	4,308		
Drytown.....	200	Mare Island..	600	San Andreas..	1,183	Total Cities	
Duncan's Mills	200	Martinez.....	3,858	San Anselmo..	2,475	and Towns... 1,347,844	
Durham.....	250	Marysville....	5,461	San Bruno....	1,562	Add Suburban	
Dutch Flat....	750	Maxwell.....	500	San Francisco.	506,676	Population.. 368,115	
Eldridge.....	500	Mayfield....	1,127	San Jose.....	39,642	Total Popula-	
El Cerrito....	1,505	Menlo Park... 900		San Juan.....	350	tion Served.. 1,715,959	
Elmira.....	350						

Unmarked—Electricity only.

1—Gas only.

2—Gas and Electricity.

3—Gas, Electricity and Water.

4—Gas, Elect. and St. Railways.

5—Electricity and Water.

6—Electricity supplied through other companies.

7—Gas supplied through other companies.

8—Water supplied through other companies.

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ETERNAL POWER. STORED AMONG ETERNAL PEAKS. LAKE FORDYCE

Vol
14

JULY 1922

No
2

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Volume XIV



Number 2

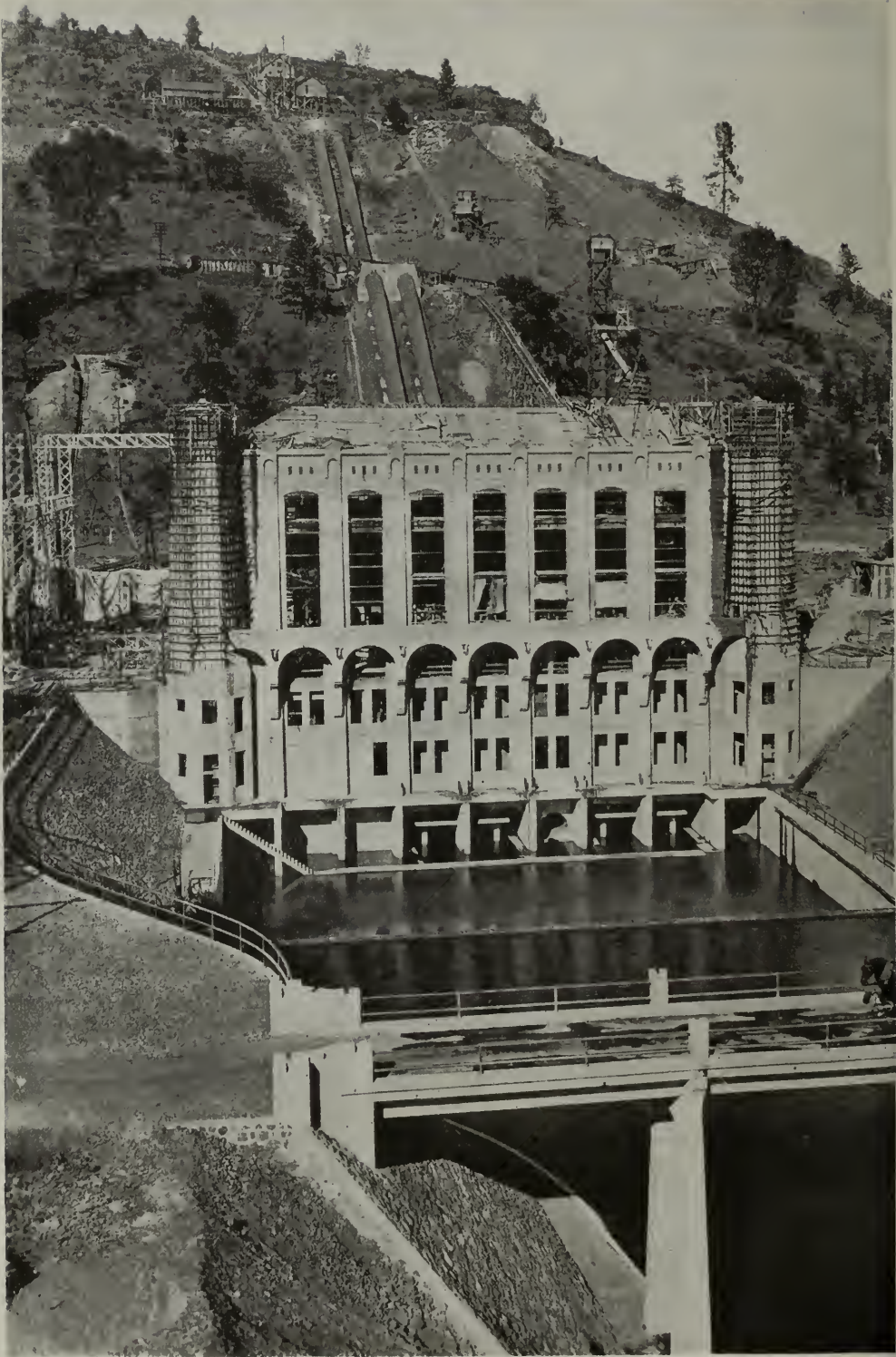
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The giant power house at Pit River No. 1 development as it appeared to the newspaper editors who visited it recently.

The Pit and the Press

Newspaper editors of north-central California inspect our latest hydro-electric development and comment most favorably thereupon

By FREDERICK S. MYRTLE
Editor Pacific Service Magazine

"There is only one way to really appreciate the extensive development work the P. G. & E. is doing in the Cascades, and that is to go there and see it."

The quotation is from an article by Miss Jean Rudd in the Oakland Post-Enquirer, descriptive of a trip to our company's Pit river hydro-electric development in which Miss Rudd was one of a party of journalists representing the daily press of north-central California.

Some one said once, "Seeing is believing." Undoubtedly our company's management had this idea in mind when it sent out invitations to the daily and weekly press in the "Pacific Service" territory to journey with it into the water wonderland of Shasta county and visualize in the only practical way the part that "Pacific Service" is playing in the great program of hydro-electric development that is in progress from end to end of our Golden State.

In connection with this development program there has been instituted a campaign of education that, so far as concerns those upon whose shoulders lies the burden of ac-

complishment, shall not rest until the public service and the public it serves are joined together in the bonds of a common understanding. In a state like ours, where confident predictions are made of a ten million population in the not far-distant future, where new industries are springing up over night, so to speak, where the march of progress halts not for an instant, electricity, now universally recognized as the great modern developer, is in constantly increasing demand. The people of California have been told that hundreds of millions of dollars must be raised and expended by the power companies of the state in providing against an assured future. The people should know the details. What better medium for their dissemination than the public press?

So, that they might come face to face with the most remarkable of California's



On the McCloud River Special at the McCloud switchback.



Mr. Frank Leach took charge of our party en route.

natural resources and, in this way, realize the comprehensive character of the development work in progress, some ninety representatives of the daily and weekly press made the trip to the Pit river region where our company's engineers are completing the first of a chain of water-power projects that will, in the aggregate, contribute upwards of 500,000 horsepower to the "Pacific Service" electric generating and distributing system.

In affairs of this kind train and car accommodation, while liberal, is not unlimited, so it was found necessary to divide our sightseeing enterprise into two excursions, one set apart for the daily and another for the weekly press. The first of these assembled at the Oakland mole on the evening of Friday, June 30th, where a special train made up of Pullman coaches, diners, baggage and observation car stood waiting to convey the party along the line of the Shasta route as far as Sisson, the junction of the Southern Pacific with the McCloud river railroad. It is worthy of note that all who sent acceptances to the company's invitation turned up. In the party were four ladies, Mrs. J. H. Dungan, editor of the *Oroville Mercury*; Mrs. Geo. C. Mansfield, wife of the editor of the *Oroville Enterprise*; Mrs. Walter H. Fink, wife of the editor of the *Redding Courier-Free Press*, and Miss Jean Rudd, the capable young woman from Oakland already mentioned.

Officers of the company acted as escorts. President Creed was on hand, and so were

general manager John A. Britton, treasurer A. F. Hockenbeamer and secretary D. H. Foote. Messrs. P. M. Downing, vice-president in charge of electrical construction and operation; Frank A. Leach, Jr., vice-president in charge of public relations and service; A. H. Markwart, vice-president in charge of engineering; W. G. Vincent, Jr., vice-president and executive engineer, and R. E. Fisher, vice-president in charge of sales, made up a body of management officers who placed their services at the disposal of our guests. Division managers escorted visitors from various interior sections of the "Pacific Service" territory. Mr. O. W. Peterson, engineer of general construction, and Mr. J. P. Jollyman, chief of division of hydro-electric and transmission engineering, were among the prominent technical experts on hand. Three of our directors joined the party, Messrs. Norman B. Livermore, John A. McCandless and J. D. McKee. It was a thoroughly representative gathering our Pit river special bore northward that night.

Our train was listed as the second section of the "Oregonian," scheduled to leave San Francisco ferry at 10:20 p. m. Most of our guests assembled at the mole much earlier, so that when we pulled out they were already well acquainted with their hosts as well as with one another. Needless to say, the observation car was in demand and it was quite a late hour before



Messrs. H. G. Ridgway, Fred George and Earl Fisher.

some sought their berths. At Gerber, in the small hours of the morning, a Pullman from Sacramento containing newspaper men from the valley districts was joined to the train. More joined at Red Bluff and Redding, so that when breakfast time came it took two diners to accommodate the entire party. The morning hours were passed in admiring the scenery along the banks of the Sacramento and, also, in digesting some educational literature provided by the publicity department. An early lunch was served aboard the train and upon arrival at Sisson shortly after one o'clock transfer was made to the McCloud river special which stood waiting on a siding.

In addition to the usual passenger coach this train was provided with two flat cars supplied with board seats and decorated with fresh pine boughs, not to mention a huge banner on which was inscribed, "Editors' Excursion to Pit River Power Projects of the Pacific Gas and Electric Co." Passengers and baggage were transferred without delay and the train wound its way around the base of majestic Shasta. It was hot weather and a glimpse of the snow-clad slopes of this noble peak was most refreshing. The



Editor M. F. Cochrane of San Rafael found the weather warm.

railroad runs from Sisson through McCloud to Bartle, a distance of about 35 miles, at which point it has been carried on another 34 miles to the construction camp at Pit One. This addition, as readers of PACIFIC SERVICE MAGAZINE are now well aware, was constructed by our "Pacific Service" engineers in the space of about three and one-half months last fall. Upon this part of the trip the viewpoint of a guest may prove more interesting than that of one to whom the trip has become familiar through habit. Mr. H. C. Thompson, of the San Francisco Journal, thus graphically describes his impressions of the trip from Bartle:

"From Bartle the train moved cautiously down the thirty-five mile stretch of track built by the Pacific Gas and Electric Company to speed up shipments of materials to the Pit river. Its course lay southerly from Bartle, winding through timbered canyons cut by swift trout streams. Finally, after a four-hour run from Sisson, the train broke into an open, sparsely wooded valley inclosed by mountains of loose volcanic rock, resembling giant fill-ins. Through this valley dashed the Pit river, watering bits of rich green meadows on which sleek cattle were pasturing.

"As the train swung full into the valley, the bald mountain at its head came into view, marked by the work of man. At its base, a gray structure with towers on



Mr. Britton conversing with Editor O'Brien of Chico.

either side loomed like a medieval castle and from it a pair of black pipes reached half way up the mountain.

"The train came to a stop in a straggling, dusty mountain town. It was something more than a construction camp, since its rough, unpainted buildings contained stores, barber shops and the usual appurtenances of civilization, including a moving picture theatre, where, soon after our arrival, we sat down to a splendid dinner with such an appetite as

nized and rewarded. If it were not such a contented camp it would not have produced the excellent band of some twenty-odd pieces that serenaded us at dinner. And none of the excursionists felt bitter thoughts toward the ambitious youth of unmanageable lip who practiced the saxophone into the night. We hope he makes the band.

"The power house is an impressive and handsome building, since the company does not see that beauty and utility need



Passengers on the McCloud River Special posed for a group picture at Bartle.

only mountains can arouse. But the camp was not without its signs of permanency. The company's club house, artistic in design and beautifully stained, served as a hotel, with bedrooms for officials and guests that lacked nothing in modern convenience.

"A thousand men live in this camp, many with their families; and it was their kindly and hospitable womenfolk who served our meals in the picture palace. Between the women and the lively youngsters just out of high school and college, there is plenty of social life. It is a contented camp, reflecting the spirit of the company, to which the members are intensely loyal. One felt the comradeship between bosses and men. The square deal prevails, and merit is quickly recog-

be divorced. It is tall, battlemented and castle-like, suggesting enormous strength."

Shortly after the arrival of the party at Pit One Camp the newspaper men were conducted through the power house in small groups and the technical features of the apparatus were explained by the company's engineers. Following dinner, which was excellently served by the wives and sisters of the company employees under the able direction of Mrs. R. B. Gray, Mr. Creed spoke a few words of welcome. Motion pictures of the Pit River development were then shown by Mr. Downing, following which Mr. Jollyman explained in simple words the highly technical problems involved in the transmission of 500,000 horsepower of electric energy at 220,000 volts. "Imagine," said

Mr. Jollyman, "a machine belt one mile wide, stretched over a space 300 miles in length and spinning at the rate of a mile a minute; or, if this is too great a strain on the imagination, conceive of the force required to move 700 passenger trains of ten cars each at the speed of forty-five miles an hour. Then you will gain some idea of what the output of the Pit River development will mean."



The Club House and adjoining cottages at Pit No. 1 Camp housed our guests most completely.

After "good-night" from Mr. Britton, our visitors retired to their sleeping quarters in the club house and adjoining cottages. The following morning, after an early breakfast, the party was conducted in twenty-three automobiles through the wonderland of the Pit River basin. Burney Falls, described by artists as "the most beautiful sheet of water in the world," was visited and marvelled at, and our visitors were much astonished on being shown, as its source, a tiny pool bubbling out of a dry bed of lava rock less than a mile from where one hundred and fifty second feet of water poured over the falls. The two Hat Creek plants were inspected and a visit was paid to the diversion dam in

Fall River and to the tunnel. The circuit was completed by returning over Saddle Mountain, where the guests inspected tunnel portal and surge-chamber and returned to camp by way of the tramway down the penstock slope.

After a late lunch the party reluctantly embarked on the waiting train and began the return trip. An hour's halt was made at McCloud, where dinner was served, after which the journey was resumed to Sisson, where the same Pullman train that had carried the excursion northward was in readiness.

Early the following morning the party left the train at Dixon and motored to Vaca substation, there an excellent break-

fast was served in the camp dining hall, in which the cook fairly outdid himself in the preparation of delectable dishes. Public-spirited citizens of the Vaca Valley contributed generously to the enjoyment of the occasion. The Dixon Community Council sent flowers with which the tables were artistically decorated. Messrs. Doyle



Pit No. 1 Camp is pretty proud of its band, which is musically efficient.



Engineer Peterson in conversation with President Creed.

and Davey, dairymen of Dixon, contributed to each guest a pint bottle of what was labeled "certified milk," but which seemed to contain far more cream than milk. "The Nut Tree," situated on the State Highway near Vacaville, presented to everyone an individual basket of Vaca valley fruit. Needless to say the gifts of this generous and enterprising community were appreciated and newspaper and power men alike will long remember the Vaca valley as a place of friendliness, sunshine and open-hearted hospitality.

After an inspection of the substation, now nearing completion, where the mysteries of synchronous condensers, oil circuit-breakers and 220,000 volt transformers were explained, our visitors were conveyed to their various homes by automobile.

The general verdict was that the trip was perfectly organized and the execution of every detail

efficiently carried out. Mr. Frank Leach, as director-general of the excursion, conducted things, as one journalist expressed it, "with military efficiency." Mr. O. W. Peterson, in charge of transportation, seemed everywhere at once. His was the difficult task of making railroad connections "connect." But he did it—there were no delays, no confusion, no lost baggage, no lost passengers. Jim Martin, at Pit One, got together, in a short space of time, an

organization that handled the accommodation and entertainment of a trainload of guests as efficiently and as quietly as though they were experienced hotel men, rather than power plant builders.

The second excursion, conducted for the editors of the weekly newspapers, left on Friday evening, July 14th. The personnel of the company's officials escorting the party remained practically unchanged. The program was carried out in identically the same manner as the first trip and was equally pleasant and instructive. There were two ladies in the party, Mrs. Florence O'Brien, wife of the editor of the



The ladies of Pit No. 1 Camp volunteered their services as waitresses.

Chico Enterprise, and Mrs. Martial Daroust, wife of the editor of the *San Francisco Wasp*. The same ground was covered, the same sights were seen as on the first excursion and, judging from the latest editions, which are just beginning to come in, the editors of the weekly newspapers were as much inspired and impressed by the great work going on in Shasta County as were their brethren of the daily press.

The following representatives of newspapers in our "Pacific Service" territory availed themselves of the invitation extended:

Andrews, C. E., *Vacaville Reporter*; Armstrong, Albert M., *Alturas New Era*; Albee, W. E., *San Jose Mercury Herald*.

Baggerley, H. L., *San Jose News*; Baker, H. F., *Redding Searchlight*; Berghthold, R. A., *Hughson News*; Bowers, N. A., *Engineering News Record*, San Francisco; Boyd, W. J., *Sausalito News*.

Calkins, D. R., *Ceres Courier*; Cassidy, V., *Marysville Appeal*; Cochrane, M. F., *San Rafael Independent*; Coleman, Clarence, *San Francisco Business*; Clement, A. E.,

Marysville Democrat. Davis, Sheldon, *Stockton Record*; Donoho, Harry C., *San Francisco Chronicle*; Dungan, Mrs. J. H.,

Oroville Mercury; Davoust, Martial, *The Wasp*, San Francisco; De Gaa, H. D., *Willows Transcript*; Decker, A., *River Rambler*, Los Molinos; Dedrick, W. T., *San Anselmo Herald*; Dick, Lewis C., *Saratoga Star*; Due, Will F., *Roseville Register*; Dunnicliff, F. G., *Dixon Tribune*.

Fink, Walter H., *Redding Courier Free-Press*; Finley, E. L., *Santa Rosa Democrat*; Fulweiler, Chas. R., *The Bulletin*, San Francisco; Fleharty, A., *West Side Index*; Newman, Falch, A. E., *Mail-News*, Los Gatos; Fleharty, R. C., *Patterson Irrigator*; Flodin, C. W., *River*

News, Rio Vista. Gallagher, Chas., *San Francisco News Letter*; Gildersleeve, G. W., *Nevada City News*.

Henderson, Geo. C., *Oakland Tribune*; Halcrow, Edwin J., *Daly City Record*; Hedge, J. D., *Redwood City Standard*;

Hemenway, F. C., *Winters Express*; Henry, M. R., *Livermore Herald*; Hodges, R. E., *Pacific Rural Press*, San Francisco; Howard, H. S., Jr., *Berkeley Courier*; Hull, H. A., *Tracy Press*; Hall, C. D., *Auburn Journal*. Ingram, Senator Thos., *Grass Valley Union*.

Kunze, C. E., *San Francisco Call-Post*; King, O. A., *Amador Ledger*, Jackson; Kynoch, E. L., *San Rafael Journal*.



Inside a section of Pit No. 1 penstock. Messrs. Newbert, McKee and Downing.



A tramway ride down the penstock slope at Pit No. 1.

Langdon, J. Earl, *Sacramento Bee*; Langdon, Ed., *Napa Journal*; Leake, Paul, *Woodland Democrat*; Liati, L., *L'Italia*, San Francisco.

Mansfield, Geo. C., *Oroville Register*; Miller, John, *Red Bluff News*; Mixon, W. F., *Woodland Mail*; Merk, S. D., *Bur-*

Enquirer; Rugg, W. A., *Martinez Gazette*; Ryan, Geo. W., *Richmond Terminal*.

Sherman, E. L., *Modesto News*; Smith, R. C., *Journal of Electricity*, San Francisco; Stahl, H. F., *Vallejo Evening News*; Smith, D. L., *Williams Farmer*; Smith, P. M., *Mountain View Register*; Speed,



BUILDERS OF THE PIT.

Left to right: Top row—Grover Green, Field Engineer; John A. Britton, Vice-President and General Manager; W. E. Creed, President; E. H. Hatch, Resident Engineer. Lower row—James Martin, Superintendent of Construction; J. P. Jollyman, Chief of Division of Hydro-Electric and Transmission Engineering; O. W. Peterson, Engineer of General Construction; A. H. Markwart, Vice-President in charge of Engineering, and P. M. Downing, Vice-President in charge of Electrical Construction and Operation.

lingame Advance; Meyer, Louis, *Oakdale Leader*; Moody, H. G., *Redding Searchlight*; McBrian, C. A., *Ripon Record*; McNamara, A., *Cottonwood Enterprise*.

O'Keefe, D. E., *Redwood City Times-Gazette*; O'Brien, Florence, *Chico Enterprise*.

Patrizi, Ettore, *L'Italia*, San Francisco; Pennycook, Russell, *Vallejo Chronicle*; Portman, E. C., *Journal of Electricity*, San Francisco; Putnam, I. D., *Stockton Independent*.

Rhodes, Frank, *Fresno Evening Herald*; Riggins, Ed. S., *San Mateo News-Leader*; Roessner, Elmer, *Daily News*, San Francisco; Rudd, Miss Jean, *Oakland Post-*

Robt., *South San Francisco Enterprise*; Stewart, C. W., *Oakland Advance*; Stowe, Eugene C., *Fairfield Enterprise*.

Taylor, Ray, *San Francisco Examiner*; Thompson, Herbert, *San Francisco Journal*; Tillman, A. C., *Suisun City Courier*.

Van Harlinger, J. A., *Sonora Union-Democrat*.

Wales, Jas. E., *Berkeley Gazette*; Walker, R. W., *Vallejo Times-Herald*; Weeks, Malcolm, *Santa Rosa Republican*; Wood, Homer, *Petaluma Courier*; Weir, D. A., *Solano Republican*; Suisun; Wigmore, S. W., *Orland Register*. Zambresky, W. B., *San Leandro Reporter*.

Some Comments by the Daily Press



Mr. Britton bids the camp "au revoir."

"When the Central Pacific Railroad drove the last spike at Sacramento it made history for California. It will remain for the Pacific Gas and Electric Company to make more history next September when it will finish the first unit of its famous Pit River power project."

"The excursion was as delightful as it was interesting and instructive."—*San Jose News*.

"The trip was conducted with remarkable efficiency."—*Stockton Independent*.

"The trip was personified harmony and friendliness. Those P. G. & E. people like one another and it is very plain to see that the co-operation which results accounts for 'Pacific Service'."

"There is only one way to really appreciate the extensive development work the P. G. & E. is doing in the Cascades and that is to go there and see it."—*Oakland Post-Enquirer*.

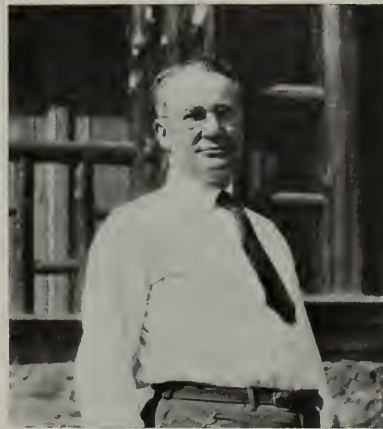
"The Editors' Excursion was the best organized and most perfectly managed of any the newspaper representatives had ever attended."—*San Francisco Bulletin*.

"It is hard to realize the stupendous figure of 600,000 horsepower, and one may obtain the atmosphere, so to speak, only by a visit to the Pit region."—*Vallejo Chronicle*.

"'Pacific Service' was apparent everywhere, no confusion, no waste, no discontent, rather a contented efficient and co-operative spirit seemed to prevail."—*Woodland Mail*.

"Two days of adventuring in the wonderland of the Pit River have brought the newspaper men of California to a lively sense of appreciation of the magnitude of the greatest hydro-electric power unit in the world."—*Chico Enterprise*.

"Every one went home conscious of the debt that California owes private enterprise in the development of its water power, a development that means greater



President Creed enjoyed the sunshine.

population and wealth for the entire state."—*San Francisco Journal*.

"The party of newspapermen has returned from an inspection trip of the Pit River region, thoroughly convinced that the real future of California hinges upon adequate understanding by the people of the problems involved in hydro-electric development."—*San Francisco Chronicle*.

"From beginning to end the P. G. & E. engineers are doing things that have never been done before. They went ahead and did the things that couldn't be done and the entire electrical and power engineering world has taken off its hat to their genius."—*San Jose Mercury-Herald*.

"Some seventy scribes enjoyed one of the greatest electrical educational tours that has been held."—*Santa Rosa Republican*.

"Too much can not be said in praise of the master minds that conceived and looked after the carrying out of the objects of the trip."—*Vallejo News*.

"Instructive, interesting, enjoyable."—*Vallejo Times Herald*.

"Pacific Service" was in evidence from the time that our Pullmans and diners pulled out until we rolled back again."

"Undoubtedly, the 8,213 employees of the P. G. & E. Co. comprise one of the happiest and largest 'families' in the world."—*Woodland Democrat*.

"The visitors expected to see monuments of industry rearing their heads aloft in this splendid region, but they saw something, too, that gave an added thrill to the imagination, for in 'rearing magic



Mr. Downing explained things.

castles in an Alpine fairyland,' they did not have their heads to the earth. They saw the beauties of the landscape about them and they made their works to conform with the locality in which they are built. The clubhouse is a veritable Swiss chalet, blending into the high, green mountains that form its background."—*Chico Enterprise*.

"Sixty superior California newspapermen marvelled that so much had been done in the space of a year."—*Sacramento Bee*.

"Highly enthusiastic over the trip."—*Fresno Evening Herald*.

"A pleasing feature of the new development is the attention that is being given to the welfare and comfort of the employees."—*Oroville Register*.

"Special credit is due to Frank Leach, who had charge of all the arrangements and whose plans worked out with military efficiency."—*Oroville Mercury*.

"P. G. & E. rearing power castles in our wonderland."

"Newspapermen amazed at the things that have been wrought in a far country by great wealth and enterprise."—*Redding Searchlight*.

"No other hydro-electric project in the entire world will mean as much as the Pit River development for it will mean that energy sufficient to perform a day's work can be purchased by the consumer for

the low cost of two cents."—*Marysville Democrat*.

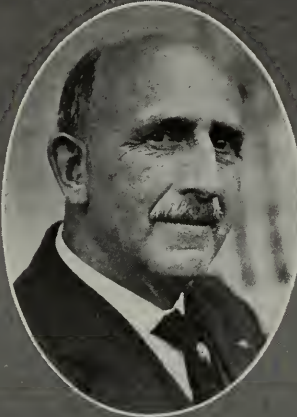
"Everywhere, at every moment, night and day, was emphasized the spirit of loyal 'Pacific Service' that has been so ably fostered and encouraged by the discernment, the justice and the warm-heartedness of John A. Britton."—*Chico Enterprise*.



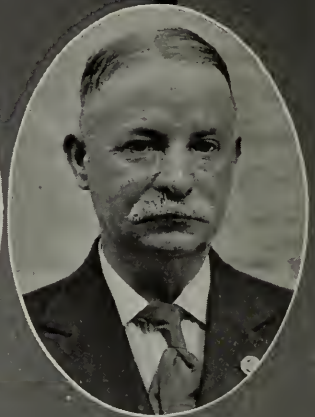
Inspecting the interior of Vaca sub-station.



JAMES CUNNINGHAM



WM. HUGHES



ALEXANDER MACDONALD



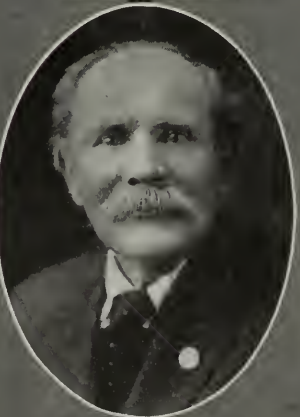
WILLIAM PETERSON



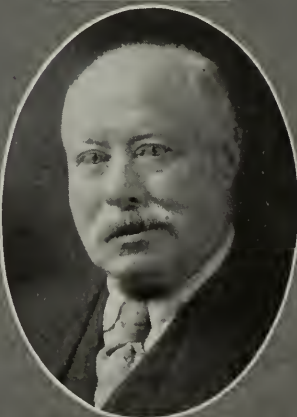
JAMES E. FITZPATRICK



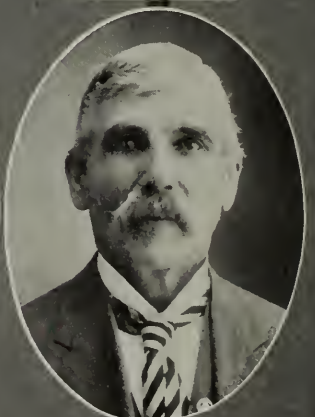
JOHN MCINERNEY



A.L. HILTENBRAND



BENJAMIN LUNDY



CHAS. E. FISH

The "Pacific Service" pension roll. The above portraits are of nine former employees whose long and faithful service has entitled them to honorable retirement.

The "Pacific Service" Roll of Honor

Heading the honor roll of "Pacific Service" are 64 names of men whose long and faithful service to our company has been rewarded by their honorable retirement with provision for their declining years under our company's pension system, which underwent complete revision last fall.

In the last five issues we presented the portraits of forty-five men whose names are upon our company's pension roll, accompanied by their several service records. In doing this we were actuated by a desire to make our readers acquainted with these men and their records and to point out what is generally recognized in all up-to-date business enterprise, namely, that long and faithful service shall have its reward.

Opposite this will be found the sixth installment of nine portraits of our company's pensioners arranged according to terms of service. These are:

James Cunningham. 66 years of age, having been born December 23, 1855. Entered the service of the San Francisco Gas Company in 1872, and at the time of retiring on a pension, July 1, 1922, was employed at the Potrero gas plant in San Francisco.

Wm. Hughes. 55 years of age, having been born January 2, 1867. Entered the service of the Oakland Gas, Light and Heat Co. July, 1890, and at the time of retiring on a pension June 1, 1918, was employed in the electric department of East Bay Division.

Alexander Macdonald. 55 years of age, having been born March 16, 1867. Entered the service of the Central California Electric & Railway Co. March 1, 1892. Retired on a pension January 1, 1922, at which time he was an employee of Sacramento Division.

William Peterson. 68 years of age, having been born February 15, 1854. Entered the service of the Folsom Light and Power Co. in March, 1895, and at the time of retiring on a pension, February 1, 1918, was employed in Sacramento Division.

James E. Fitzpatrick. 61 years of age, having been born August 17, 1861. Entered the service of the Edison Light

and Power Co. in February, 1896. At the time of retiring on a pension, January 1, 1921, was employed in San Francisco Division.

John McInerney. 70 years of age, having been born in 1852. Entered the service of the San Francisco Gas Light Co. in January, 1896, and at the time of retiring on a pension, August 1, 1917, was employed in San Francisco Division.

A. L. Hiltenbrand. 71 years of age, having been born August 26, 1851. Entered the service of the Capitol Gas Company, Sacramento, in April, 1896, and at the time of retiring on a pension, January 1, 1918, was employed in Sacramento Division.

Benjamin Lundy. 70 years of age, having been born January 5, 1852. Entered the service of the Pacific Gas Improvement Co. in January, 1897, and at the time of retiring on a pension, January 1, 1918, was employed in the gas distribution department, San Francisco Division.

Chas. E. Fish. 66 years of age, having been born June 19, 1856. Entered the service of the Peninsular Light Co., Redwood City, in January, 1897. At the time of retiring on a pension, May 1, 1921, was employed in East Bay Division.

Sand-Dredging on the Yuba River

By FARWELL BROWN

In early days in northern California gold seekers conducted hydraulic mining operations in the Sierra Nevadas, an enterprise which caused the virtual destruction of valuable waterways, with millions of tons of debris forming vast sand-bars and rendering rivers and streams unfit for navigation.

Nowhere in California is this condition more noticeable than at Marysville, which is situated at the junction of the Feather and Yuba Rivers, formerly navigable streams, but now filled with extensive sand-bars. However, following out the old adage, "Tis an ill wind," etc., during the past few years Marysville has witnessed the development of a thriving industry which owes its origin to the very presence of these sand-bars. This is the sand-dredging industry, pursued on a large scale by three organizations, among which is the Yuba River Sand Company.

"Pacific Service" recently came to function in this important enterprise when the sand company abandoned its antiquated 30 horsepower steam engine and completely electrified its plant, installing several large G. E. motors pulling a total load of approximately 160 horsepower. Although the plant has

been operating its electric motors only a short time, directors of the company declare they already can observe a twenty-five per cent increase in efficiency over the former steam engines.

The sand industry at Marysville has assumed astounding proportions in a short period of time because of the superior quality of the product found in the Yuba River. The large silicon content and the presence of other beneficial minerals in generous proportions renders Yuba River sand especially valuable for concrete, mortar, engines, and concrete mix (sand and gravel combined). The new plant has a daily capacity of 1,000 tons of $\frac{1}{4}$ -inch and $\frac{1}{8}$ -inch washed and screened sand per 10 hours, requiring but three workmen to operate. Two shifts are employed in the summer season. Daily shipments are made to hundreds of points within a radius of 200 miles of Marysville, reaching into Oregon, Utah, Nevada and all portions of California.

This company has supplied material for several of the Pacific Gas and Electric Company's building projects, numbered among which are the Spaulding dam and the Halsey & Wise power houses in Drum Division. It also supplies the California State Highway Commission. Yuba River



Sand-dredging on the Yuba River near Marysville.

sand was used exclusively in lining the Newcastle ditch.

The sand is excavated from the river by means of a 1 cubic yard "Stockton" clam-shell bucket operated from a stiff-leg derrick and a double drum hoist. Hoist,

bucket and derrick are portable and travel on a wide gauge track. The hoist is operated by a 75-horsepower G. E. motor with solenoid brake and Morse silent chain drive. After scooping the river bed, the clam-shell bucket de-

posits its load into the washing plant which has, at the top, a large receiving hopper protected with grizzly bars. From the hopper the sand is fed by means of water jets and gravity to either one of the two screening units or both.

From June to November, water in the river is at low ebb and then additional material is supplied by means of a $2\frac{1}{2}$ -yard surface scraper taking sand from the opposite bank of the river and dragging it into the channel where the clam-shell bucket is operating. The scraper is operated on a span of approximately 600 feet.

The new feature of this plant is that the screens are set directly over the sand-washing tank in such a way that the

screening areas of the screens proper are submerged in the water so that the screening takes place below the water level. The screens are designed to reject silt, returning it to the river and also to grade the sand which is to be shipped. A

capacious bunker equipped with sloping sides, 34 feet high, 40 feet long and 20 feet wide is made with two compartments and built to provide railroad clearance. The material is loaded into the cars by means of slide gates lo-

cated at the bottom of the bunker and operated by levers from a platform.

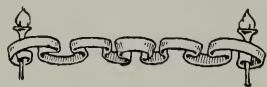
Winter operations while sand is moving in the river are insured by the provision of a 25,000-ton ground storage space. This also makes possible prompt deliveries in the event of shut-downs, etc.

The directors of the Yuba River Sand Company are: L. L. Green, President; Emery Oliver, Vice-President; W. T. Ellis, Secretary. Mr. A. L. Brownlee is manager of the plant and Wm. C. McBurney, foreman.

The Pratt Building Material Company and the Marysville Sand Company also carry on extensive dredging operations on the Yuba River just south of Marysville.



Loading sand-cars for shipment.



New Boosting Equipment Recently Installed in Our Fresno Gas Plant

By HARRY J. SMITH

Engineer of Construction, Department of Gas Construction and Operation

Fresno's population has increased 81 per cent in the last ten years, and so it came about that in January of the year 1919, Pacific Gas and Electric Company found it not only advisable but necessary to entirely abandon its old gas generating plant which was located at "F" and Mariposa streets, and having a generating capacity of 2,000,000 cubic feet a day, in favor of something more up to date and of a capacity sufficient to meet the

Approximately 20 miles of mains were added to the distribution system which included a high pressure feeder from the plant having a diameter of 8 inches and a length of 17,000 feet, and this was necessary to insure service to the outlying districts.

The plant was well equipped with generators, scrubbers, purifiers and other apparatus necessary for generation and purification, but was found lacking in



General view of our company's new gas plant at Fresno.

greatly increased demand for this most useful domestic and industrial commodity.

The new plant occupies 7.4 acres of land with a frontage on Tehama and Button streets, and has installed the most modern type of generating equipment, with a generating capacity of 4,000,000 cubic feet a day. It was put in operation on December 6, 1918, and had a peak day load in January this year of 2,656,390 cubic feet, or an increase of 11 per cent over last year.

boosting equipment to deliver the gas to the consumers. So, in June last year, plans for the installation of additional boosting equipment costing approximately \$68,000 were started and once the plans were approved the work was proceeded with, for it was realized that in order to give our company's consumers the service they were entitled to, the new boosting equipment would have to be in operation before the winter load.

The first installation was a gas com-

pressor belt connected to a gas engine, and capable of delivering 75,000 cubic feet of gas per hour at 40 pounds gauge pressure. It is a single stage duplex type, with two 17-inch gas cylinders having a 12-inch stroke. The machine has a speed of 235 revolutions per minute and is equipped with differential unloaders, so that when a predetermined pressure is reached the unloader automatically reduces the capacity of this machine to 35,000 cubic feet of gas per hour, and if the pressure continues to rise the second unloader releases the balance of the load, whereby the whole machine is unloaded. The suction valves are of the simplate ring type and are equipped with piston valves for releasing the load which open full to the suction line whereby it is impossible to pull a vacuum. When the pressure drops two pounds below the predetermined pressure then, at that time, one of the unloaders automatically increases the capacity from zero to 35,000 cubic feet of gas per hour, and if the pressure continues to drop the second unloader automatically restores the compressor to full capacity.

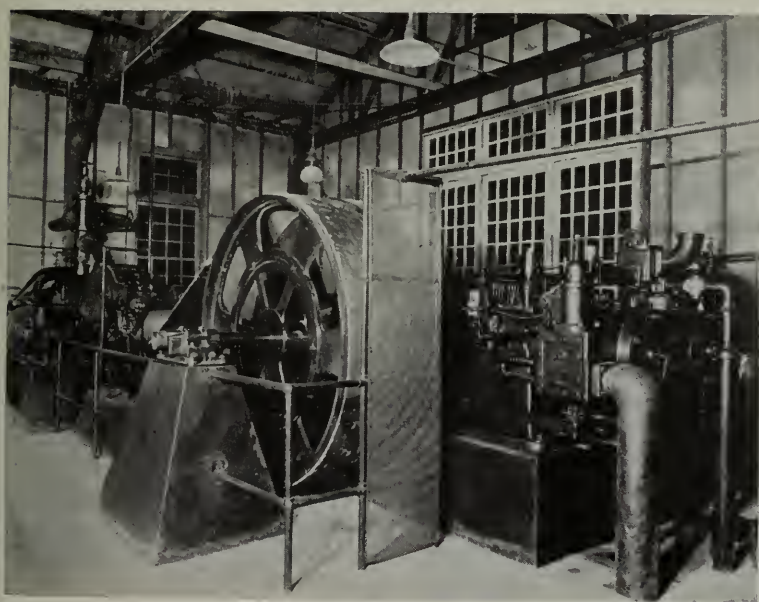
The gas engine is a 160 h. p. horizontal type and is operated on 570 B. t. u. gas which is manufactured at this plant and was designed on the basis of 9,800 B. t. u.

or 17.2 cubic feet of gas containing 570 B. t. u. per cubic foot per horsepower hour. This engine has a speed of 200 revolutions per minute and is a four-cycle machine with both cylinders discharging at the same time, and the cylinders have a diameter of $14\frac{1}{4}$ inches with a stroke of 24 inches. The engine is equipped with a regulator to vary the amount of gas required for any given horsepower even when the compressor is fully unloaded. This unit has a separate air starting apparatus and when the test run was made last October, it was noted that only three-quarters of a minute was necessary to start the gas engine and the compressor and give full capacity to the city. The belt tightener is a special design with counterweights and air dash pots so as to keep the belt absolutely tight as you will note that this unit has but fourteen feet between centers with a belt of three-ply leather 17 inches wide.

The next unit installed was a gas compressor which is direct connected to a 350 horsepower synchronous motor having a speed of 225 revolutions per minute, and the field of this motor is excited with a 10 K. V. A., 125-volt D. C. generator, which is direct connected to a 15-horsepower induction motor. The gas compressor is the same design as the one previously described

with the exception that this machine has two 20-inch diameter cylinders having a 16-inch stroke and is capable of delivering 140,000 feet of gas per hour at 40 pounds gauge pressure.

The plant now has an outdoor sub-station of 3-150 K. V. A. transformers with 11 K. V. delta primary and a 2,300-volt delta secondary. The cable from this bank termin-

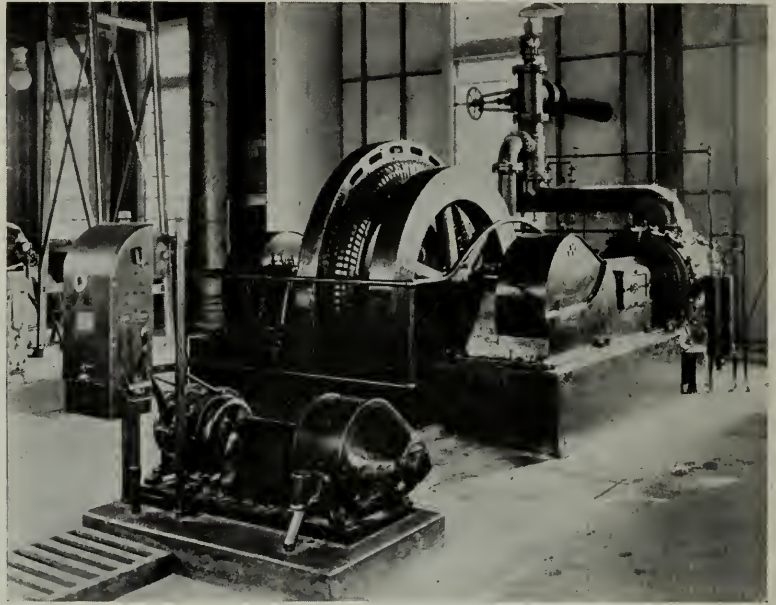


Compressor driven by gas engine.

ates in the compressor room which connects to a general bus that supplies the electric-driven compressor and other electric equipment through individual oil switches which are controlled from the front of the switchboard and are equipped with overload relays and undervoltage releases so as to protect each piece of apparatus.

At this time a Number 9 gas booster was installed and direct-connected to a 40-horse power variable speed motor which has a full load speed of 1,750 revolutions per minute with a minimum speed of 900 revolutions per minute. This booster is capable of delivering 10,000 cubic feet of .4 specific gravity gas per minute at 12 inches of water pressure at full speed. The idea of a variable speed motor is to insure 12 inches of water pressure to the town at all times, irrespective of the position of the holder.

The building is a wood frame structure,



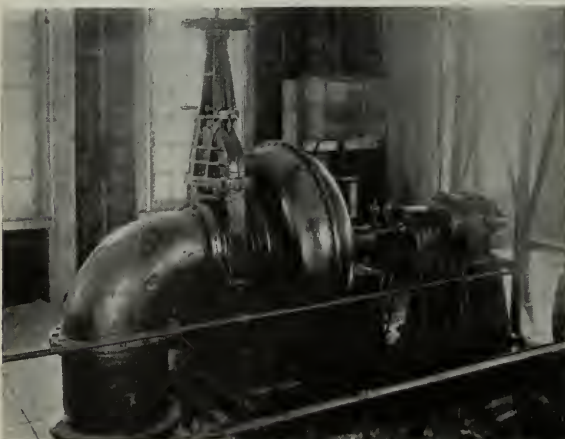
Compressor driven by electric motor.

40 feet wide by 45 feet long, and is an addition to the present meter and booster building. The wood frame is covered with channel lath and cement plaster with side walls $1\frac{1}{2}$ inches and roof 2 inches thick, which makes a very presentable building for this class of work.

A 100 h. p. induction motor was also installed at this time to drive the Number 10 blower for blowing the gas generator, which is installed in the generator building, and the starting and stopping of this unit is controlled by a push button from

the operating floor which is connected to an automatic starter in the compressor building alongside of the switch board, which is about 250 feet away from the generator building.

All of the equipment has been in operation for the last nine months, and the operators express themselves greatly pleased with the whole installation as allowing for the greatest amount of flexibility. This means that it will be possible to insure continuous service to the city of Fresno at all times.



Gas booster direct connected to an electric motor.

OUR "PACIFIC SERVICE" EMPLOYEES ASSOCIATION

On June 24th the largest dinner ever conducted in the West was held in the Civic Auditorium, San Francisco. This was the sixth annual dinner of our association, served to approximately twenty-five hundred members who came from every division of our company's vast territory for the event.

To provide for so large a gathering was no small undertaking and great credit is due Committee Chairman R. W. DuVal and his staff of earnest co-workers for the results achieved. Months of careful planning and hard work brought about a coordination of the hundreds of details involved, with the result that the dinner may be entered in the history of the association as the gayest, the brightest, the most spectacular event ever given.

The auditorium was ablaze with light and color. In the center of the floor a platform had been erected, over which was suspended a huge replica of our company's triangle emblem, emblazoned with blue lights. Tables were arranged for seating the guests by geographical divisions, each table laden with "favors," consisting of paper caps and vari-colored balloons.

The speakers' table, extending almost the entire width of the hall, was artistically decorated with bright colored flowers. Here Chairman of the Association Wm. M. Henderson presided. With him were President W. E. Creed, Mr. John A. Britton, Mr. and Mrs. A. F. Hockenbeamer, Mr. and Mrs. D. H. Foote, Mr. and Mrs. P. M. Downing, Mr. and Mrs. F. A. Leach, Jr., Mr. A. H. Markwart, Mr. and Mrs. W. G. Vincent, Jr., Mr. W. S. Yard, Mr. R. E. Fisher, other officers and department heads of the company and the officers and members of the executive committee of the association.

At six o'clock the doors of the auditorium were opened and promptly at the appointed hour, six-thirty, every place was filled and Sapiro's band of forty pieces opened the program with "The Star-Spangled Banner." A four-course dinner was served, excellent as to both

quality and quantity. According to the menu each dish was the product of the territory served by one of the company's divisions.

After the last course had been served a colorful and attractive pageant, "Messages from the Head Office," was enacted by twenty-two pretty girls, in which baskets of flowers, concealing messages, were sent along suspended wires from the central platform to each division manager. As each basket was sped on its way the message it contained was flashed on the screen.

Chairman Henderson opened the speech-making with a few words of welcome. He reviewed the remarkable progress of the association from the time of its inception to its present proud record of over 5,000 members. He urged each member to work hard for his association and reminded his audience that he who gives the most will derive the greatest benefits.

Mr. Britton, to whose helpful interest and counsel the association owes so much of its success, then rose to introduce Mr. Creed as the speaker of the evening and was greeted with a tremendous ovation. In introducing Mr. Creed, Mr. Britton spoke of the keen interest and sympathy of our company's president for the welfare of the association.

Speaking on the timely subject of "What's ahead for California," Mr. Creed said:

"California has room for ten times its present population; it possesses resources sufficient to support a tenfold increase in industrial development and can create ten opportunities for useful work where one now exists. We are too prone to think our future is assured because we have enormous natural advantages in forests, fisheries, minerals, land, climate and a commanding position on the great Pacific. These possessions alone will not build the Western Empire we dream of. We must hitch intelligent human effort to our natural advantages.

"What we do, the public policies we

adopt, will have a profound effect upon the growth of the state. Our public policies will be most effective if we seek through the advantages of collective effort to bring about a timely and orderly development in all our activities, and avoid the folly of attempting to stimulate advance in one direction by stifling advance in another. Neither the passion of the moment nor the prejudice of the hour should be allowed to divert us from this fundamental truth.

"The whole world is calling for new capital. The ravages of war have created an unprecedented demand and competi-

tion was necessary before the \$50 cash prize was awarded.

For the showing of the "stunts," the permanent stage below the organ was utilized, the band being seated on the center platform, where it rendered appropriate music.

De Sabla opened the contest with "The Old Camp Ground." The curtain rose, disclosing a faithful reproduction of P. S. E. A. Camp de Sabla in the mountains of Butte County. The scene was complete with tent, cooking utensils, camp furniture, fishing tackle and even a camp fire and real fish. It is reported that since the



It took the large hall of San Francisco's Civic Auditorium to accommodate the 2,500 members of Pac

tion for capital. To build, to grow and prosper, California must meet this competition just as successfully in the future as it has in the past. Capital is willing to follow Americanism. If we hold fast to the ideals and conceptions on which American government is founded, if we are sound and intelligent in what we do, the progress of our great state will go forward without interruption."

At the conclusion of the speech-making all adjourned to the balcony to view the real feature of the evening, the competitive "stunt" contest. Months of careful planning and hard work on the part of each of the company's divisions resulted in a revue of "stunts" so unique and original in conception and execution that half an hour's serious consideration by the judges, Messrs. Creed, Britton and Leach,

showing of the scene, Camp de Sabla has been swamped with applications for reservations.

East Bay followed de Sabla and displayed an animated map of its territory, each city and town being represented by a fair member of East Bay Division. Following the map episode the representative of each town emerged from a huge gas meter and stood in review before the curtain.

San Joaquin presented a "stunt" boosting the coming outing at Stanislaus on September 2nd, 3rd and 4th, in which ten pretty girls appeared, each arrayed in costumes representative of the varied sports which may be enjoyed at the outing.

North Bay was represented by all its districts, opening with a screen picture of Santa Rosa, showing the horticultural

genius, Luther Burbank, followed by "The Petaluma Egg-trot," in which two hens and a rooster cavorted in an eccentric dance. Marin contributed "The San Quentin Quartet," composed of three convicts and a guard. Vallejo's offering was "The Launching of the Battleship California" in which a model of the great cruiser, perfect to the most minute detail, was launched from miniature ways. North Bay closed with a realistic reproduction of the famous Calistoga geysers, typical of Napa District.

"The Spirit of the Santa Clara Valley," offering of San Jose, was dedicated to the

Sacramento displayed a map of the state with a heart in its center as Sacramento, "The Heart of California." By the closing of a switch, high-frequency current sent 500,000 volts jumping about on the map.

Fresno's offering was a timely demonstration in the method of converting the famous Fresno raisins into equally famous P. G. & E. first preferred stock certificates.

Shasta showed a complete model of Pit River Power House No. 1 as it will appear about September 15th next. The model, complete and to scale, showed the pine-clad hills, the penstocks, the power house with its outgoing transmission line and real



Yucca Valley Association who gathered at the sixth annual dinner of the association on June 24th this year.

Valley's most prolific product—the California prune. The scene disclosed a giant specimen of the fruit from which emerged a fairy sprite who charmed her audience with her graceful interpretation of the spirit of Santa Clara.

Twenty-five members of Drum Division, led by their drum corps, marched from the rear of the hall to the stage, where, by means of animated posters, they conveyed the message of our mountain division to their fellow members. They were well-trained and vociferously received.

San Francisco displayed a large gold heart, emblematic of "The Heart of 'Pacific Service'." The heart opened and a figure portraying Mr. Britton emerged and stepped forward to shake hands with a workingman in overalls.

water emerging from the tail race. The tableau was the result of months of untiring effort on the part of the Pit River construction forces, by whom every detail was planned and built for the occasion.

West Side displayed a spectacular representation of Mt. Lassen in eruption. A realistic reproduction of the only active volcano in the United States belched equally realistic smoke and rumbled in an alarming manner.

After due consideration by the judges, the \$50 cash prize was awarded to Shasta, which decision met with unanimous approval. After the conclusion of the stunts dancing was enjoyed until midnight. Altogether it was a never-to-be-forgotten affair, one that will try the ingenuity and the originality of next year's committee to surpass or even to equal. H. S. F.

Pacific Service Magazine

PUBLISHED IN THE INTERESTS OF ALL EMPLOYEES OF THE
PACIFIC GAS AND ELECTRIC COMPANY

JOHN A. BRITTON - - - - EDITOR-IN-CHIEF
FREDERICK S. MYRTLE - - MANAGING EDITOR
A. F. HOCKENBEAMER - - BUSINESS MANAGER
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VOL. XIV

JULY, 1922

No. 2

EDITORIAL

Hon. H. M. Daugherty, United States Attorney-General, in an address delivered at the annual convention of the National Electric Light Association at Atlantic City last May, not only declared against the political, governmental or municipal ownership of public utilities but pronounced the opinion that in ninety-five out of a hundred instances municipally owned or government-owned utilities have proved failures as matters of finance as well as of service.

"Regardless of class, or color, or means, more money belonging to the people is invested in the utilities you represent than in any other utility in the world except the steam railroad companies. That is the character of 'public ownership,' I am frank to say, I am in favor of," said Mr. Daugherty. "The electric light and power companies are publicly owned, for there are more than one million six hundred thousand security holders who are citizens of this country. That is true 'public ownership,' with the incentive of private development, investment and management, under fair public regulation, which is preferable to political ownership and political management, which always follow where the municipality or the government owns a public utility."

This direct speaking is from the mouth of a man who, in the capacity of chief legal adviser to the great American commonwealth, brings to his office the experi-

ence of a lifetime devoted to the investigation of public affairs. He speaks, not as the advocate of any class, but as the representative of a government whose business it is to work for the best interests of the people at large. Mr. Daugherty is openly in favor of regulation and tells how he helped to draft the first public utility act in the state in which he lived. "At that time," he states, "those who were in control of public utilities were not friendly to the undertaking. There was a demand on the part of the public for regulation. The managers of utilities maintained the position that they should have the right to control their own affairs without interference, to build as they chose and where they chose, and, regardless of investment or cost of maintenance and operation, charge such rates as they saw fit and render such service, limited or otherwise, as they saw fit. Long and animated discussion involving all of these questions ensued. Legislation was thereafter rapidly enacted establishing utilities commissions generally throughout the states, notwithstanding that the men in control of utility companies generally vigorously opposed said legislation and policy.

"Times have changed. With the exception of the demagogue, the raider, the rider and the common nuisance, it is universally agreed that it was wise and judicious legislation and in the interest of both the investor and the public."

The United States Attorney-General favors a reasonable return on capital invested and a fairly liberal reward for the hazard of investment, so that the best service consistent with natural interferences may be given. He favors playing the public utility cards face up on the public table and presenting the figures in full view of the public gaze, making known the amount of capital honestly invested, the cost of maintenance and the cost of operation, to the end that the investor may know the value behind his stock certificate and the consumer be assured that the product so necessary to him and his use is available at a fair and reasonable price.

"I trust that we have reached the day and determined the way when our backs are forever turned on the old plan of an unfair public demanding something for nothing, and a public utility demanding

something for nothing," says Mr. Daugherty. "The trouble is that these questions have been too often and too long hawked about and talked about in politics, while the merits of the controversy have been ignored. Too often the controversy originates and is perpetuated for partisan political purposes, to the disadvantage of the investing public on the one hand and of the consuming public on the other."

Mr. Daugherty speaks as every well-informed public man speaks who has studied the public utility problem with open mind. Too long have the people listened to the voice of the demagogue and the political agitator and the man with an ax to grind. From the very standpoint of self-interest alone should the people lend ear to the voice of wise counsel at a time like this, when country and state are advancing by leaps and bounds in every phase of progress and development. The tax question alone should decide the issue in the wavering mind. Statistics show that since the world war the issuance of tax-exempt state and municipal securities has imposed a steadily increasing burden upon the general public. In 1919 the average tax-burden in a family of five was a matter of about 60 cents; the following year, by the issuance of additional tax-exempt securities, this was increased by \$1.75, making the family charge \$2.35. The year 1920 saw another \$1.75 added to the burden, and last year the issuance of further tax-exempt securities by states and municipalities added \$3.00 more. The result to date is that, practically none of these securities having matured, every family in the country is making an average tax contribution of \$7.10 for the privilege exercised by the states and municipalities of avoiding taxation in engineering their financial requirements.

Had the vast sum invested in tax-exempt state and municipal bonds—\$3,112,546,994 was the aggregate face value of the bonds issued during the four years—been invested in public service utility securities, every family would now be enjoying an income of close to 50 cents a year and every state and municipality would have expanded and grown more prosperous, attracting private capital, stimulating trade and reviving industrial activities.

It is with much regret that we announce the retirement from the ranks of "Pacific Service" of Earl B. Henley, who on July 1st resigned his position as head of the Land and Tax Department to assume the post of vice-president and general manager of the California Pacific Title Insurance Company, with headquarters in San Francisco.

Undoubtedly Mr. Henley's experience during his years of service with our company has qualified him for the important position to which he has been called. A native of Indiana, he was educated at Purdue University, where he took the civil engineering course, and soon after his graduation, in 1903, he came to California. He worked for a while in Amador County and then entered the service of the California Gas and Electric Company as right-of-way man in the land department. In 1907 he became acting manager of the department and in 1908 took full charge. In announcing his retirement from "Pacific Service" our general manager, Mr. John A. Britton, writes:

"Mr. Henley has been associated with the company in all of its activities practically from its very inception, and has brought to it unusual loyalty and devotion to his work, and has placed his department on an unusually high plane. His personality in dealing not only with the public but with his fellow employes has endeared him to all, and he has carried in person and in his practice the slogan of our company.

"He carries, I know, not only my good wishes, but those of the entire organization in his new position."

So say we all of us. Earl Henley made friends everywhere. He is a member of Phi Kappa Psi and for two years was president of the alumni association of that fraternity in San Francisco. He was prominent in college athletics and earned a reputation both as a runner and a wrestler. From his prowess in the latter branch he acquired the name of "Turk," which has clung to him even up to the present day.

"Pacific Service" wishes him well and knows that a successful career is assured him.

From the head office comes the announcement of the appointment of Mr. George H. Canfield as acting manager of the Land and Tax Department.

The Financial Side of "Pacific Service"

Following is condensed comparative Income Account Statement for the five months ended May 31, 1922, compared with the same period of the preceeding year:

CONSOLIDATED INCOME STATEMENT (Including operations of Mt. Shasta Power Corporation)

FIVE MONTHS ENDED MAY 31ST

	1922	1921	Increase	Decrease
Gross Earnings, including Miscellaneous Income.....	\$16,223,519.53	\$15,942,402.60	\$281,116.93	
Maintenance, Operating Expenses, Rentals, Taxes (including Federal Taxes) and Reserves for Casualties and Uncollectible Accounts.....	9,808,955.52	10,230,464.51	.....	\$421,508.99
Net Income.....	\$ 6,414,564.01	\$ 5,711,938.09	\$702,625.92	.....
Net Interest Charges.....	2,110,114.85	2,049,675.20	60,439.65	.....
Balance.....	\$ 4,304,449.16	\$ 3,662,262.89	\$642,186.27	.....
Bond Discount and Expense.....	184,897.28	159,345.60	25,551.68	.....
Balance.....	\$ 4,119,551.88	\$ 3,502,917.29	\$616,634.59	.....
Reserve for Depreciation.....	1,492,433.84	1,278,782.38	213,651.46	.....
Balance to Surplus.....	\$ 2,627,118.04	\$ 2,224,134.91	\$402,983.13	.....
Dividends Accrued on Preferred Stock (6%).....	1,042,941.48	879,861.86	163,079.62	.....
Balance.....	\$ 1,584,176.56	\$ 1,344,273.05	\$239,903.51	.....
Dividends Accrued on Common Stock (5%).....	721,885.24	708,699.60	13,185.64	.....
Balance.....	\$ 862,291.32	\$ 635,573.45	\$226,717.87	.....

As of May 31, 1922, the Company's Plants and Properties Account, exclusive of current assets, stood at \$190,751,000, an increase since May 31, 1921, of \$18,170,000. The latter sum represents the amount of new capital permanently invested in the business within the period of one year. Since the close of 1916, that is, in a period of five years and five months, the Company has invested close to \$58,000,000 in additional properties. Due to the fact that a large amount of money is tied up in construction work in progress which has not yet reached the income-producing stage, the increase of earnings is not as yet proportional to the increased investment, but it is anticipated that the growth of business and the economies that will result from the large amount of hydro-electric power that will be available upon the completion of the Pit River Plant No. 1 about September 1st will bring about a more normal relationship between earnings and investment. It is certainly an evidence of our strong faith in the future of Northern and Central California that we will have something like twenty millions of dollars invested in our Pit River projects before a wheel of the big plant is turned.

THE COMPANY'S PURCHASING POLICY

Northern California First has been and is the uniform policy of the Pacific Gas and Electric Company in purchasing the materials and supplies utilized in its business. In pursuance of this policy, the Company spends many millions of dollars annually in this section of the state, aside from a payroll which in the past year amounted to almost fourteen million dollars paid exclusively to employees who reside in Northern California, and interest and dividend payments running into many millions per annum disbursed among over 32,000 California investors.

The following correspondence with the California Manufacturers Association (Incorporated) may be of interest in this respect:

"June 1st, 1922.

MR. JOHN A. BRITTON,
Pacific Gas & Electric Company,
445 Sutter Street,
San Francisco, California.

Dear Mr. Britton:

One of our important members engaged in the manufacture of metal products, has asked the following question:

'Would it be possible for you to suggest to Pacific Gas and Electric Company, and other Public Utilities, which have to depend upon local people and industries for support, that a preference in purchases be given to local manufacturers, or at any rate give the local manufacturers a chance to compete?'

It seems to me that we have been informed that the Pacific Gas and Electric Company buys California products whenever possible, price and quality being equal, and I am venturing to impose upon your good nature to confirm this impression if it is correct, and permit me to reassure our member.

Thanking you cordially in advance,

Sincerely yours,
FRED BOEGLE, *Secretary-Treasurer.*"

"June 6th, 1922.

MR. FRED BOEGLE, JR.,
Secretary-Treasurer, California Manufacturers Association,
First National Bank Building,
Oakland, Calif.

Dear Sir:

Mr. Britton has asked me to reply to your letter of June 1st, 1922, and I have pleasure in advising you as follows:

(1) The Pacific Gas and Electric Company has always given preference to American products, and, as far as my information goes, has never gone abroad for anything.

(2) Whenever possible, price and quality being equal, it purchases California products in the following order of preference:

(a) From manufacturers and dealers located on its own lines and using its services.

(b) From manufacturers and dealers in Northern and Central California, that is, in the territory in which it operates.

(c) From manufacturers and dealers anywhere in the State.

(3) When materials and supplies which it purchases are not produced in its field of operations, it uses its best efforts to induce local production, either in establishments already located here, or by inducing the establishment of branch factories by Eastern concerns from whom it purchases extensively because of the non-production of these articles in California.

(4) Based on the foregoing principles, it seeks to distribute its business as impartially as possible on the basis of price, quality and deliveries.

I may add, in elaboration of Item (3) above, that it was through this Company's efforts that the manufacture of steel towers, so extensively used in the transmission of electric energy throughout the state, was established in California. It has only been a few years since all of these towers were manufactured in the East. It has also succeeded in establishing a gas meter factory in San Francisco as a branch of the American Meter Company, and has been helpful in locating other industries.

Sincerely yours,
A. F. HOCKENBEAMER, *Second Vice-President.*"

Tidings From Territorial Divisions

East Bay Division

The United States Light and Heat Corporation of Niagara Falls, New York, world's largest manufacturer of batteries and lighting equipment, is to establish a branch factory in Oakland immediately. Announcement of this new industry has just been made by the Chamber of Commerce.

This corporation has leased property at East 14th street and 54th avenue, where preparations will be rushed in order that the company may be ready to supply batteries for the Durant cars as early in the summer as possible. Production at the Durant factory is scheduled to begin on the 15th of July. In addition to a contract with Durant Motors, the new corporation also holds a contract with the Star Motor Company.

The United States Light and Heat Corporation manufactures U. S. L. batteries, which are known wherever automobiles go.

One of the most significant East Bay development projects now under way, from the standpoint of manufacturers and distributors planning to locate in this section, is the Oakland Terminal, planned for the Emeryville Industrial Tract by the Mee Estate, owners of the property.

Here, but ten minutes ride from Oakland's business center, plants, warehouses and offices will be built on a lease basis for manufacturers and distributors desiring to locate in the East Bay.

A number of notable improvements in the main business section of Oakland are announced as projects for the immediate future. Work is already under way on the erection of the seventeen-story addition of the Oakland Bank, and a six-story club and office building to cover the entire block that is now occupied by the Southern Pacific tracks and waiting room, is among the possibilities. An eighteen-story building is projected by the Oakland

Tribune on Thirteenth street near Franklin, and the corner of Eighteenth and Telegraph is soon to be improved with an adequate building.

East Bay Division reports a steady increase in new electric services installed this year over a corresponding period last year:

Oakland, Piedmont and Emeryville only; balance of division shows corresponding increase.

New Electric Service Installed

	1921	1922
January.....	146	270
February.....	205	234
March.....	232	322
April.....	270	331
May (½ month).....	117	199
TOTAL.....	970	1,356

This is an increase of 80 services per month over 1921 and from present indications a greater average will be maintained for the balance of the year.

Recently all previous records were broken when 94 new services were installed in four days.

Having proven to its own satisfaction that Oakland is the best jobbing center on the Pacific Coast, the Cleveland Metal Products Company of Cleveland, Ohio, will construct a plant at 45th and Hollis streets in the immediate future and also will locate its western executive office in this city. This company has jobbed out of Oakland for a number of months and decided to locate there after giving the territory a thorough test.

Among other new industries which have located in Oakland are the Pennzoil Company, affiliated with the Pennsylvania American Refining Company. This company has purchased two acres on the north side of Powell street, west of San Pablo avenue and will construct storage tanks and warehouses at once.

The Caltex Company, Inc., has acquired 42 acres on the west side of the S. P. tracks near Warm Springs, twenty miles south of Oakland. This company will manufacture textile products, imitation leather and by-products from wood, cotton and grasses.

The Union Ice Company has discontinued the operation of its Diesel engine, and converted its entire plant to electric operation. In order to serve this particular consumer it was necessary to build a pole type structure to hold three 150 k. v. a. transformers. This installation is the largest one of its kind in the division.

Another feature of the installation is that the 4,000-volt primary wires are brought from the top of the pole down to the transformer platform and into the transformers in single conductor lead-covered cables, so that there are no hot wires at the transformer platform. This feature, from a construction standpoint, has very many advantages.

The Republic Steel Package Company plant in North Richmond is nearing completion and will start up in a few days, announces S. B. Berry, manager of the plant. The new industry will make oil drums and different kinds of metal containers. About twenty men will be employed at the start, the force to be increased as the capacity of the plant becomes greater.

Richmond has forty factories, employing 5,500 persons. The capital invested in these industries totals \$31,649,000, with an annual payroll of \$8,014,000. These industries turn out manufactured products to the value of \$75,316,000. That the industrial enlargement of Richmond will double in the next five years is assured. Harbor development and permanent improvements in the way of taking care of shipping are proof to those who have watched the development of ports of entry similar to that of Richmond.

An abundant supply of pure water is the most important consideration in the growth and expansion of any community.

The East Bay Water Company is now supplying the East Bay district with such a supply. Reports compiled by engineers show that the water company now has approximately nine and one-half billion gallons in its great storage reservoirs, a sufficient supply for three years.

The rapid growth of the East Bay district will make the present supply inadequate within nine or ten years, according to a recent estimate. In order to be certain that there shall be no shortage of water at the end of this period, engineers of the company are making studies of water development from distant sources of supply. Three company engineers recently returned from a tour of eastern cities, where the principal development projects were inspected. In the estimate it was stated that actual construction on a distant source of supply should begin not later than 1926, which will allow from five to six years for the construction of the project.

Completion of the San Pablo project has given the East Bay cities a great volume of water to draw from every day in the year.

The company is making many improvements in its distribution system. New and larger mains are being laid in Berkeley and Oakland.

The East Bay Water Company takes service from the Pacific Gas and Electric Company at thirty different locations on its system, with a total connected load of 3,271½ horsepower. Thus "Pacific Service" is not only a factor in the distribution of heat and light, but it is also depended upon as a reliable agency in the serving of water to the rapidly growing East Bay communities.

J. C. J.

San Joaquin Division

A most desirable new business contract has been signed in the Tuolumne District, whereby "Pacific Service" will supply the Standard Lumber Company with two thousand horsepower for the next year with a probable increase of an additional thousand horsepower within another year.

The Standard Lumber Company, whose offices and mills are located in and about Standard City, near Sonora, have contemplated the electrification of their

plant for some time. The power contract means the abandonment of an isolated steam plant and the complete electrification of most of the equipment by individual drive, which is the most efficient means of distributing the power. To supply this service will involve the construction of a new transmission line from Stanislaus power house to Standard City by way of Mt. Elizabeth. The new load will result in an annual revenue of from fifty to sixty-five thousand dollars.

San Joaquin, the leading cherry producing county of California, will ship between seventy-five and one hundred carloads of cherries this season. The fruit is being pre-cooled before shipment, insuring its reaching the eastern markets in good condition.

Building in Stockton since the first of the year has been progressing at a rate heretofore unequalled in the history of that city. For the first five months a total of 571 permits, involving the sum of \$1,496,241, have been issued by the City Clerk. During the month of April, Stockton led the entire twelfth federal reserve district in per cent of increase in building over the corresponding month of last year.

The new ice plant built in Riverbank by the Santa Fe Railroad Company is completed and is now making ice. The plant furnishes employment to fifty men, and manufactures up to two hundred tons of ice daily, which will be used in shipping fruit. The storage facilities are such that 10,000 tons of ice can be stored. This establishment is the largest of its kind in the San Joaquin Valley and its location in Riverbank is expected to result in making this community a central point for the fruit industry. "Pacific Service" supplies 600 h. p. to the enterprise.

The first quota of trainees have arrived at the vocational training center on Roberts Island, west of Stockton, and the number will be increased within the next few weeks. It is planned to train several hundred men on the farm.

Packing of Stanislaus County's 1922 crop of apricots, peaches, pears and grapes

will be in full swing within thirty days. The two canneries in Modesto are employing approximately 1,200 men and women to handle the output, which will average upwards of 20,000 cans daily during the season. The apricot pack will be completed by July 20, at which time the canneries will swing into the peak of the peach pack.

Two wallboard plants are the most recent additions to the Stockton industrial field. One plant has been installed by the California Cedar Products Company at a cost of \$50,000 and will have a daily capacity of 30,000 to 35,000 feet of plaster wallboard. The National Wallboard Company has leased quarters in the plant of the National Paper Products Company. The capacity of this plant is 20,000 square feet daily.

With a per capita valuation of its agricultural products of \$1,185, based on rural population, San Joaquin County, California, ranks first among the counties of the United States, according to a compilation made by Representative Clarence F. Lea.

Over half a million dollars in permits issued in less than five months indicates the building activity going on in the City of Modesto. In 1920 over one and one-half million in permits were issued and constituted the banner year of that thriving city, but from present indications the year 1922 will surpass the remarkable figure of 1920. The business district is enjoying the greater part of the construction work, with the building of two and three-story business blocks, theatres and hotels. Such activity as this invokes confidence in the future of any city.

The Stockton City Council has selected sites for the municipal auditorium and city hall. Bonds for which were voted some time ago, and plans are being prepared for the buildings.

The Elks Hall Association of Modesto have definitely decided to construct a \$100,000 Elks home. The new building will be a combination lodge and commercial structure, class "A," three stories high, with stores on the ground floor,

while the two upper stories will provide adequate lodge rooms and a banquet hall.

The Kings Food Products Company of Portland, Oregon, pioneer in the dehydration industry and operator of the largest dehydration plant in the United States, has entered the California field and established a plant in San Joaquin County.

Abundant rains and fine crops have practically assured for Stanislaus County a very prosperous year. The enterprising farmers, by practicing scientific agriculture, are developing the county resources to a very high degree and consequently the income from the valley farms is becoming a big factor in the State's wealth. There is still room in the San Joaquin for thousands of farmers, who, by applying modern farming methods, together with the use of water as provided by many irrigation projects, can feel optimistic toward the future.

S. J. D.

Sacramento Division

Sacramento, the Heart of Doin' Things!

Yes, we are doing things with a vengeance. Building private residences by the thousand, apartment houses by the hundred, commercial buildings by the score, school houses by the dozen and a government building to the extent of six millions of dollars.

Our twenty-four school houses, including the new high school building, are well under way and will be a valuable addition to our city's sky line. The high school will rank among one of the finest in the state. The junior university is also assured and will mean much to our future prosperity.

Excavation for the new \$3,500,000 additions to the State Capitol is complete. The additions will consist of two beautiful buildings, one to be known as the "Law Library" and the other as the "Library Building." They are to be constructed of marble and granite and will accentuate the beauty of California's capitol, which, with its gardens, is already known as the most beautiful in the United States.

Over 150 new buildings were connected with gas last month.

Our street car system is undergoing some alterations in its routing. The G street line has made new cross-town connections at the Postoffice and is now a complete cross-town line, beginning at 30th and G, thence west to 7th street, cross town on 7th to J, east on J to 28th. It affords accommodations for many people on a five-minute headway.

"THE CAPTAIN."

Captain George B. Baldwin, better known as "The Captain," former Special Agent in the New Business Department of the Sacramento Division, has been transferred to the head office in San Francisco, where he will engage in special promotion and exploitation work.

Captain Baldwin won his military title through service in the Spanish-American war and the Philippine insurrection. During the world war he re-entered the service as a captain of infantry. He enjoys the distinction of having been the Mayor of Nome, Alaska, and was also Chief of the Fire Department of the same city. He served as Chief of the Arctic Brotherhood and is a member of the Yukon Order of Pioneers.

E. W. F.

The Gas Department is at the present time making a great many additions to the Sacramento plant and, when all of the work is carried through to completion, the cost will amount to approximately \$100,000.

We are now rebuilding the 14-foot gas generator which will cost approximately \$23,000, and when completed will increase the capacity of this generator from 100,000 cubic feet per hour to 125,000 cubic feet per hour.

We have ordered at this time two 250-horsepower Stirling boilers, in battery, of the most up-to-date setting, which will be fired from front and rear, which means increased capacity for these boilers. This plant also has installed a 225-horsepower Stirling boiler and a 250-horsepower B. & W boiler and, with the installation of the two new boilers in battery, it will give Sacramento sufficient boiler capacity for

their steam requirements. This installation will cost approximately \$41,000.

A 130,000-cubic-foot-per-hour steam-driven gas compressor is to be added to this plant, which will insure service to the high pressure system which supplies the towns of Davis, Woodland and Sacramento. This plant has installed at the present time two motor-driven compressors and two gas engine-driven compressors. The steam-driven compressor will insure dependable service and will also give increased capacity to the high pressure system. The installation of this compressor will cost approximately \$24,000.



Fresno Division

The continued prosperity of Fresno is indicated by the steady increase in fine business blocks and apartment houses. The Patterson Building of eight stories, under construction at the corner of J and Tulare streets, at a cost of \$525,000, will replace the old Forsythe Building, destroyed by fire last year and will have a full block frontage on Tulare street.

The Brix Building on J street, to be occupied by Coopers' department store, will have six stories and is to cost \$300,000.

Another two-story building is under construction on the site of the old Kutner Building, at a cost of about \$40,000.

Over a half-million dollars worth of new apartment houses have been started since the first of the year at the rate of nearly one a week. For the most part, these are of the eight-flat dwelling type and are built with the particular needs required by the climate in view. The north end of Fresno is beginning to look like a prosperous city apartment house district and yet the demand is still greater than the supply.

Fresno is at last to have an up-to-date amusement park, to be located on the State Highway just north of Roeding Park. Eighteen acres have been purchased by the Green Mill Amusement Company and an expenditure of \$250,000 is contemplated in buildings and improving the grounds. Eight acres are to be devoted to concessions, the remainder to be given over to tennis courts, bowling greens and a main building, called the "Green Mill." This is to be a modern

casino with dancing floor and café, in which the promoters hope to furnish for the people of Fresno a modern amusement resort on a par with those of the coast cities and will fill a long felt want.

Fresh California figs are again rolling on their way to the markets of New York and Chicago. The fresh fig was an entirely unknown article in the East until last year when some two hundred tons were shipped to eastern markets from this valley. Local packers hope to ship this year at least one hundred cars and the popularity of this Fresno product gives promise of a large outlet for the fig crop of the San Joaquin Valley.

"Pacific Service" is valiantly keeping up with the procession of the city's growth. In the month of May, 12,310 feet of 3-inch and 2,548 feet of 4-inch new main line extensions were laid and a total of 298 services and 380 meters were set. "Pacific Service" is right in line.

E. W. K.



De Sabla Division

The following letter from the Bidwell Park Playground Commission speaks for itself:

CHICO, CALIFORNIA,
July 12, 1922.

Mr. I. B. Adams, Manager,
Pacific Gas & Electric Co.,
Chico, California.

My dear Mr. Adams:

We wish to thank you for your courtesy shown in the prompt installation of the lighting system at the Five Mile Dam, not only for your promptness in the installation, but for your very reasonable installation, which not only the members of the Bidwell Park and Playground Commission appreciate, but which is appreciated by all of the citizens of Chico. The lighting of the Five Mile Dam has been appreciated by all of the people who enjoy swimming and there has been a great deal of favorable comment as a result.

The Bidwell Park and Playground Commission wish to thank you most heartily for your cooperation.

Sincerely yours,
(Signed) E. T. WILLIAMSON,
Secretary.

San Francisco Division

Some of the larger installations recently secured for "Pacific Service" by the New Business Department:

NE corner California and Gough—community apartment house, five apartments, load about seventy-five horsepower. Some idea of the size of the apartments may be gained from the statement that Mr. K. W. Buck, who will occupy the top apartment, has a music room large enough to accommodate a \$20,000 pipe organ. The apartments contain twelve rooms and four baths.

Kosac Sales Co., 33 Dolores street. This establishment, starting with a connected load of fifty horsepower, will be the largest tire concern in San Francisco.

The National Fibre Form Co., manufacturers of wallboard, have started operations at their new factory and are using seventy-five horsepower night and day.

A new modern apartment house on the NW corner of Twentieth and Dolores streets, opposite Mission Park. This is reported to be the most modern in the city.

The new Matson Building, Main and Market streets. Sixteen-story office building, headquarters of the Matson Navigation Co. Will utilize approximately 250 horsepower.

New apartment house at 500 Oak street. This will be an all-electric apartment house, containing twenty-seven Hotpoint-Hughes electric ranges. The connected load will be approximately 222 kilowatts.

SE corner Polk and Ellis streets. New headquarters for Chanslor and Lyon, three stories and basement.

The largest garage in the Mission has signed for "Pacific Service" at 3620 Nineteenth street.

The Homestead Bakery is averaging about a loaf of bread to the cubic foot of gas and the consumption for the first nine days in July was 483,000 cubic feet.

A little mental arithmetic will reveal the number of loaves baked each day. Mr. H. Banshaf, owner and manager of the bakery, is more than pleased with the results of using gas as a fuel for baking, both from a standpoint of cleanliness and efficiency and from economy.

F. T.

San Jose Division

Here is a letter that forcefully expresses the appreciation of the writer for the courtesy of "Pacific Service":

*Security Warehouse and Cold Storage Co.
General Storage and Refrigeration
Public Weighers and Distributors
350 N. First St., San Jose, Cal.*

June 15, 1922.

Mr. John D. Kuster, Mgr.,
Pacific Gas & Electric Co.,
San Jose, Calif.

My dear John:

The second welder your personnel department found for us arrived yesterday and we are starting him in this morning. The first man you sent us turned out very satisfactory, indeed, and I trust the second one will be likewise.

I take this means of thanking you for your kindness in this matter and cannot let the opportunity go by without expressing to you our appreciation of the very courteous treatment we have had from your company. Not only have we received a practically 100 per cent service from your people at all times, but it seems everyone goes the limit in promptly taking care of our requirements, and the spirit you have shown in going outside of your line of duty to accommodate us impresses us deeply.

Again thanking you and with best wishes for you and yours, I am

Very sincerely,

(Signed) J. Q. PATTON.





YOU CAN SELECT SAFE BONDS EASILY=====

SAFETY, it is true, is more important than all other considerations in bond buying. Yet, the selection of safe bonds is a very easy matter.

For example, the bond house of recognized conservatism will lend its name and reputation only to issues of established safety. By selecting bonds only in co-operation with a conservative bond house, you are thus assured safe investments.

Blyth, Witter & Co. is particularly zealous in maintaining conservative standards in all "underwritings" and recommendations. These standards admit of no compromise and permanently protect the funds of our clients. *Every bond which appears on our list is a safe investment.*

The next time you are in funds for investment, we suggest you send for our list of current offerings. A letter, a phone call or a personal call brings the desired information without obligation.

BLYTH, WITTER & Co.

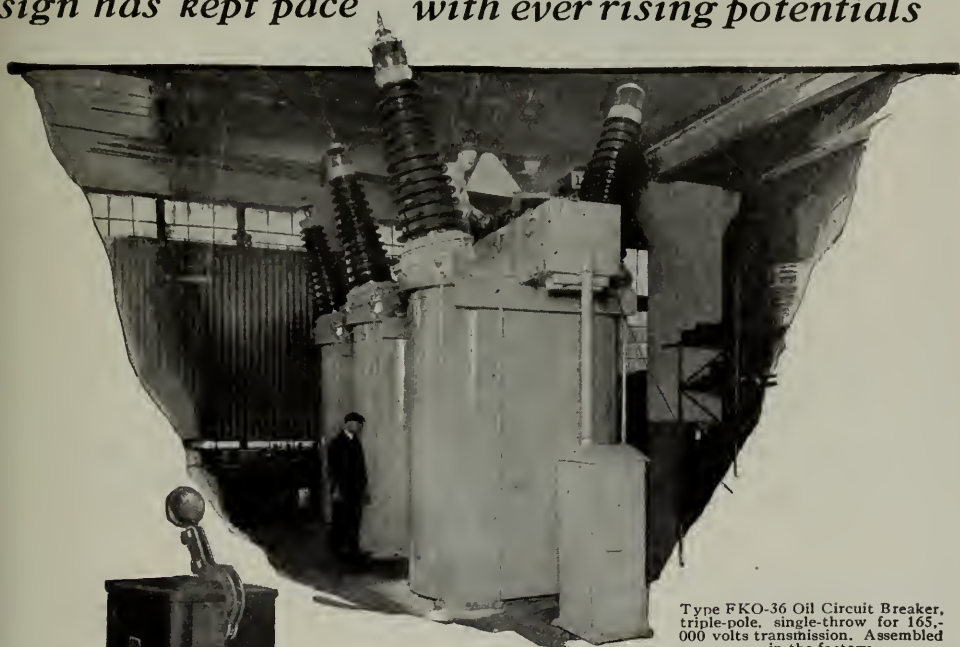
Merchants Exchange, San Francisco
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NEW YORK
CHICAGO

SEATTLE
PORTLAND

LOS ANGELES
SAN DIEGO

The possibilities of greater power transmission have been realized because protective apparatus design has kept pace with ever rising potentials



Type FKO-36 Oil Circuit Breaker, triple-pole, single-throw for 165,000 volts transmission. Assembled in the factory.



Type FP-15 Non-Automatic Oil Circuit Breaker T. P. S. T., 600 volts, 50 amperes.

Making Higher Voltage Transmission possible

The rapid rise in transmission voltages has meant that equally rapid development work has been necessary to produce Oil Circuit Breakers that will furnish the desired protection.

Research and development by General Electric Engineers have produced a comprehensive line of Oil Circuit Breakers, covering practically every known requirement. From the small 600-volt, FP-15 type weighing about 12 lbs. used to control induction motors they extend to the giant extremely high voltage type of Oil Circuit Breakers designed for the proposed 220 KV transmission lines. The breaker shown in the illustration is to be placed in operation on a 165 KV system and is the highest voltage breaker so far constructed.

Whatever your requirement there is a G-E Oil Circuit Breaker to fill it.

Consult the G-E Switchboard Specialist in your vicinity.

General Electric Company

General Office
Schenectady, N.Y.

Sales Offices in
all large cities

54A-35

When writing please mention PACIFIC SERVICE MAGAZINE



TO carry on hydro-electric development in California last year \$36,500,000 bonds were sold to individual investors. Of this total E. H. Rollins & Sons participated in the original underwriting of \$26,500,000, or more than 72%. The Pacific Gas & Electric Company \$10,000,000 First & Refunding Mortgage non-callable 6% bonds were among these issues, in the underwriting and sale of which this investment bond house served both its clients and the State.

J. W. KERR, President

Established 1869

C. D. STEIGER, Secretary

Steiger & Kerr Stove & Foundry Co.

OCCIDENTAL FOUNDRY
Successors to Steiger & Kerr

General Foundry Dept.

Machinery, Railroad, Architectural Castings, Bell and Spigot Castings for Gas and Water Mains, Flange Fittings for all Standard Electroliers, Gasoliers and Lamp Posts

Stove Foundry Dept.
Cast Iron Cooking and Heating Stoves for Wood or Coal.

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Steel Ranges, Gas Ranges for House, Hotel and Apartment.

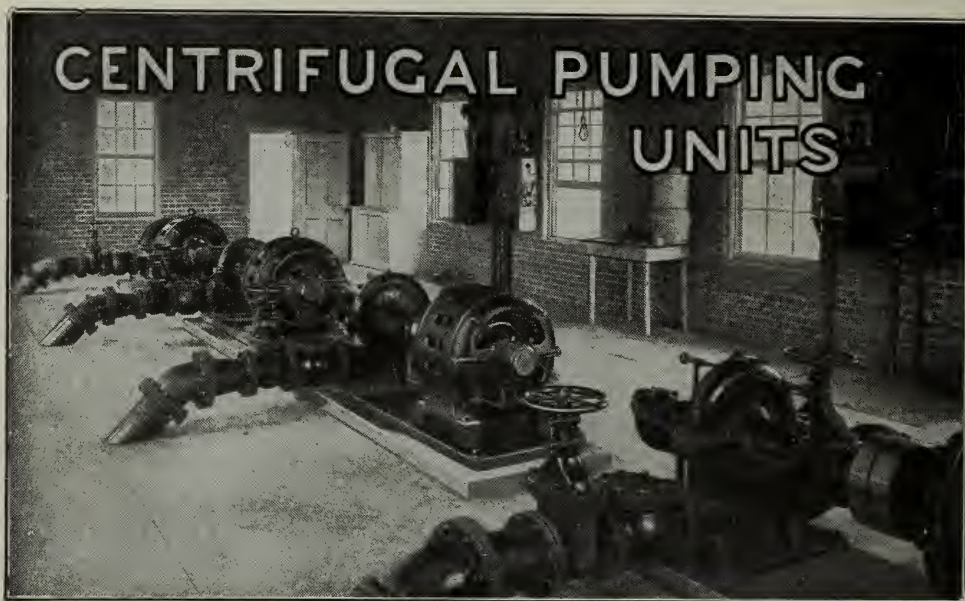
Corner Folsom and Eighteenth Streets, San Francisco
TELEPHONE MISSION 250



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PHILADELPHIA, PA.

Gas Holders
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Appliances
Cast Iron Pipe
Pumping Engines
Centrifugal Pumps
Hydraulic Machinery
Hydrants, Valves, etc.



ALLIS-CHALMERS MANUFACTURING CO.

MILWAUKEE, WISC.

District Office: Rialto Bldg., San Francisco, Calif.

Bulletin 1632-D Describing High Efficiency Pumping Units Free Upon Request

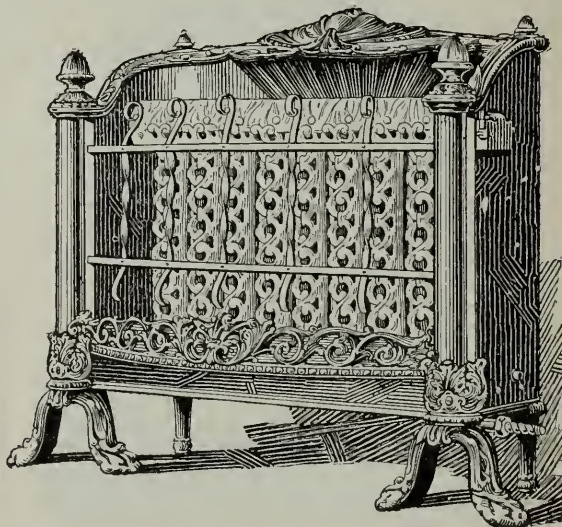
Here is a GAS HEATER that will claim your interest at once, by its unusual good looks and unique service-features first of all the

WELSBACH Gas Heater Is Self-Lighting

No matches; not even a pilot light. Just turn on the gas and press your finger on the pyrophoric lighter neatly concealed at the side.

IT HAS A PEDIGREE

The WELSBACH GAS HEATER is made by the WELSBACH COMPANY, for over a quarter of a century manufacturers of the best in gas mantles and gas lights. You can depend upon it for the same satisfaction you have always enjoyed from the genuine WELSBACH products.



WELSBACH COMPANY, San Francisco, California



PELTON

Reaction Turbines for Low-Head Plants
are of two general types, the horizontal double-runner cylindrical-case design, and the vertical single-runner design with either concrete or steel-plate spiral casing.

THE PELTON WATER WHEEL CO.

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2217 Harrison Street, San Francisco, Cal.

WESTERN PIPE & STEEL COMPANY OF CALIFORNIA

RIVETED STEEL PIPE, STAND PIPES, PENSTOCKS OR ANY SPECIAL
PLATE CONSTRUCTION

ELEVATED STEEL TANKS—OIL OR PRESSURE TANKS

WATER WELL CASING—SURFACE IRRIGATION PIPE

GALVONIZED CORRUGATED CULVERTS—GUARANTEED

STEEL WIRE FENCE WITH SELF-ANCHORING STEEL POST

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SPRAGUE CAST IRON GAS METERS

Create Economy All Along the Line

IN FIRST COST • ADJUSTING • REPAIRS • UPKEEP
USED BY 90 PER CENT OF ALL CALIFORNIA GAS COMPANIES

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SAN FRANCISCO

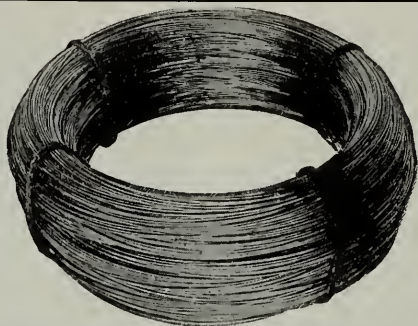
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GAS METERS *and* TESTING APPARATUS

PACIFIC METER WORKS OF AMERICAN
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1123 HARRISON STREET
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Your Requirements

of bare copper wires and cables of all kinds and sizes can be supplied by us on short notice.

STANDARD Bare Copper Wire

is rolled and carefully drawn to gauge in our rod and wire mills from highest grade copper wire bars.

Write our nearest office for prices.

Standard Underground Cable Co.

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AUTOMATIC REGULATION OF THE OIL SUPPLY IN ABSORBER TANKS

In manufacturing gasoline by absorbing it in oil and then separating it from the oil by distillation, a constant oil level must be maintained in both the absorbing tank and still.

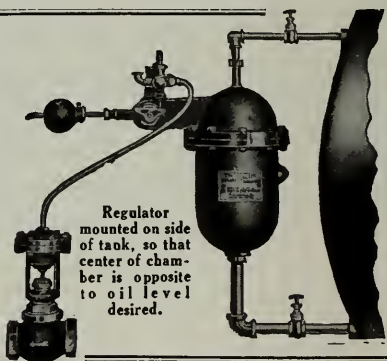
For this purpose, we offer the "Vigilant" Oil Level Regulator, adjustable to any type of absorber or steam still, which maintains a constant oil level under all conditions of temperature and pressure.

Prices and further details promptly on request.

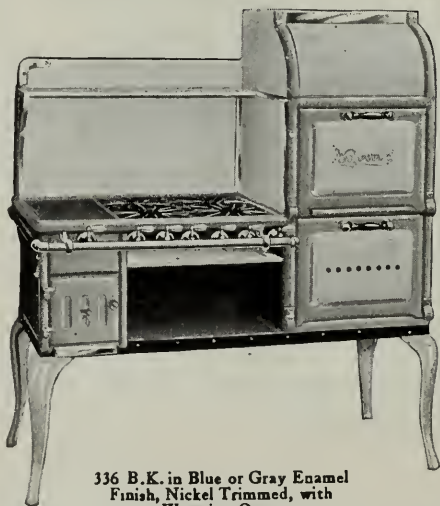
THE CHAPLIN-FULTON MFG. CO.

28-34 Penn Avenue

Pittsburgh, Pa.



What More Could Any Housewife Ask for Than This Combination Gas Range Offers?



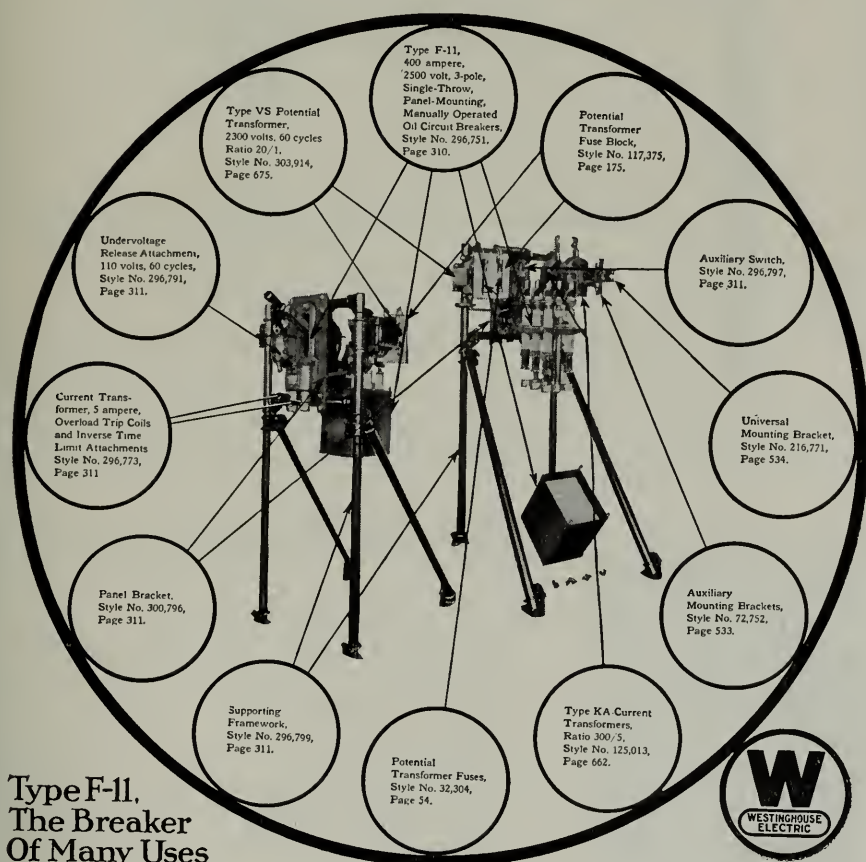
336 B.K. in Blue or Gray Enamel
 Finish, Nickel Trimmed, with
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IF THE housewife wants instant heat for a quick meal, here it is in this efficient gas range. If she wants to keep her kitchen comfortably warm in winter, the built-in heater which burns wood or coal will provide the necessary warmth. If she wants hot water at the same time, a hot water coil may be installed. Enameled surfaces make it easy to keep clean. Good to look at, a wonderful baker, economical to operate, moderately priced.

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 QUALITY SERVICE FUEL ECONOMY

JAS. GRAHAM MFG. CO.
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Order Westinghouse Type F-11 Oil Circuit Breaker Switching Equipment From Catalogue Listings



**Type F-11,
The Breaker
Of Many Uses**

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Central Stations Throughout the West



Recommend EVERHOT Electric Water Heaters.

The Automatic Overheat Cutoff Switch, furnished without extra cost, eliminates the use of a thermostat as a protection to the heater.

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Step-up Transformers

Power and position come to those who have learned to convert current coin into stored capital. A Time Deposit account in this bank will prove a strong penstock to carry idle funds to a power plant that pays 4% interest, compounded semi-annually.

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"In the Heart of San Francisco's Financial District"



UBLIC Utility Service in a growing community demands constant plant additions for which increased capital must ever be provided. The ultimate source of this increased capital is the individual investor, and the investment banking house is the medium through which the funds of the individual investor are made available to the Public Service Corporation. Through its facilities for thorough investigation the investment banking house is able to appraise the merit or prospective bond issues, by reason of its large capital it is enabled to buy such issues in their entirety, and through its sales organization it is able to distribute them to individual investors. Thus the investment banking house and the individual investor together are the direct means by which the Public Service Corporation is permitted to serve the public.

*For many years we have specialized
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request we shall be pleased to submit
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Pacific Gas and Electric Company Furnishes

"PACIFIC SERVICE"

TO OVER 610,000 CONSUMERS OF

GAS. ELECTRICITY. WATER. STREET RAILWAY

1,715,959 Total Population Served in Thirty-six of California's Counties

CITIES AND TOWNS SERVED BY COMPANY

DIRECTLY			INDIRECTLY			TOTAL	
	No.	POPULATION		No.	POPULATION	No.	POPULATION
Electricity.....	170	1,117,541		61	156,411	231	1,273,952
Gas.....	58	1,128,216		2	8,600	60	1,136,816
Water (Domestic).....	18	61,719		8	15,488	26	77,207
Railway.....	1	65,908				1	65,908

Place	Population	Place	Population	Place	Population	Place	Population
¹ Alameda.....	28,806	¹ El Verano.....	400	¹ Meridian.....	200	² San Leandro.....	5,703
¹ Albany.....	2,462	¹ Emeryville.....	2,390	¹ Millbrae.....	300	² San Lorenzo.....	500
¹ Alvarado.....	1,000	¹ Escalon.....	600	¹ Mills.....	400	² San Martin.....	250
¹ Alviso.....	517	¹ Esparto.....	200	¹ Mill Valley.....	2,554	² San Mateo.....	5,979
¹ Amador City.....	377	¹ Fairfax.....	250	¹ Milpitas.....	300	² San Pablo.....	500
¹ Anderson.....	750	¹ Fairfield.....	1,008	¹ Mission San Jose.....	500	² San Quentin.....	3,000
¹ Angel Island.....	500	¹ Fair Oaks.....	300	¹ Modesto.....	9,241	² San Rafael.....	5,512
¹ Antioch.....	1,936	¹ Fall River Mills.....	300	¹ Mokelumne Hill.....	900	² Santa Clara.....	5,220
¹ Aptos.....	300	¹ Farmington.....	300	¹ Monterey.....	5,479	² Santa Cruz.....	10,917
¹ Arbuckle.....	900	¹ Felton.....	300	¹ Morgan Hill.....	648	² Santa Rosa.....	8,758
¹ Atherton.....	500	¹ Folsom.....	2,000	¹ Mountain View.....	1,888	² Saratoga.....	500
¹ Auburn.....	2,289	¹ Forestville.....	250	¹ Mt. Eden.....	200	² Sausalito.....	2,790
¹ Barber.....	500	¹ Fresno.....	45,086	¹ Napa.....	6,757	² Sebastopol.....	1,493
¹ Belmont.....	375	¹ Gilroy.....	2,862	¹ Nevada City.....	1,782	² Shasta.....	200
¹ Belvedere.....	616	¹ Glen Ellen.....	1,000	¹ Newark.....	500	² Shellville.....	200
¹ Benicia.....	2,693	¹ Gonzales.....	500	¹ Newcastle.....	750	² Sheridan.....	250
¹ Ben Lomond.....	400	¹ Grass Valley.....	4,006	¹ Newman.....	1,251	² Smartsville.....	300
¹ Berkeley.....	56,036	¹ Gridley.....	1,636	¹ Niles.....	1,000	² Soledad.....	400
¹ Bolinas.....	683	¹ Grimes.....	500	¹ Novato.....	400	² Soquel.....	400
¹ Brentwood.....	200	¹ Groveland.....	500	¹ Oakdale.....	1,745	² Sonoma.....	801
¹ Broderick.....	700	¹ Guerneville.....	800	¹ Oakland.....	216,261	² Sonora.....	1,684
¹ Burlingame.....	4,107	¹ Hamilton City.....	250	¹ Oakley.....	200	² South San Francisco.....	4,411
¹ Byron.....	350	¹ Hammond.....	800	¹ Occidental.....	600	² Standard.....	500
¹ Campbell.....	600	¹ Hercules.....	373	¹ Orland.....	1,582	² Stanford University.....	2,700
¹ Capitola.....	300	¹ Hillsborough.....	931	¹ Oroville.....	3,340	² Stockton.....	40,296
¹ Carmel.....	638	¹ Hollister.....	2,781	¹ Pacheco.....	300	² Suisun.....	769
¹ Cement.....	1,000	¹ Honcut.....	500	¹ Pacific Grove.....	2,974	² Sunnyvale.....	350
¹ Centerville.....	1,000	¹ Hudson.....	250	¹ Palo Alto.....	5,900	² Sutter Creek.....	920
¹ Ceres.....	637	¹ Jone.....	1,000	¹ Paradise.....	500	² Tahama City.....	196
¹ Chico.....	9,339	¹ Irvington.....	1,000	¹ Patterson.....	694	² Tiburon.....	400
¹ Colfax.....	573	¹ Jackson.....	1,601	¹ Penn Grove.....	200	² Tracy.....	2,450
¹ College City.....	250	¹ Jamestown.....	750	¹ Penryn.....	250	² Tres Pinos.....	300
¹ Coliasville.....	200	¹ Kennett.....	464	¹ Petaluma.....	6,226	² Tuolumne.....	1,500
¹ Colma.....	1,500	¹ Kentfield.....	500	¹ Piedmont.....	4,282	² Turlock.....	3,394
¹ Columbia.....	200	¹ Kenwood.....	300	¹ Pike City.....	200	² Vacaville.....	1,254
¹ Colusa.....	1,846	¹ Keswick.....	200	¹ Pinole.....	967	² Valejo.....	21,107
¹ Concord.....	912	¹ King City.....	1,048	¹ Pittsburg.....	4,715	² Vina.....	300
¹ Cordelia.....	300	¹ Knights Ferry.....	200	¹ Pleasanton.....	991	² Vineburg.....	200
¹ Corning.....	1,449	¹ Knights Land.....	400	¹ Port Costa.....	900	² Walnut Creek.....	538
¹ Corte Madera.....	607	¹ La Grange.....	200	¹ Princeton.....	300	² Warm Springs.....	200
¹ Cotati.....	200	¹ Larkspur.....	612	¹ Red Bluff.....	3,104	² Waterford.....	250
¹ Cottonwood.....	500	¹ Lathrop.....	600	¹ Redding.....	2,962	² Watsonville.....	5,013
¹ Coyote.....	200	¹ Lewiston.....	200	¹ Redwood City.....	4,020	² Wheatland.....	435
¹ Crockett.....	1,500	¹ Lincoln.....	1,325	¹ Richmond.....	16,843	² Williams.....	650
¹ Crow's Landing.....	300	¹ Live Oak.....	300	¹ Rio Vista.....	1,104	² Willows.....	2,190
¹ Daly City.....	3,779	¹ Livermore.....	1,916	¹ Ripon.....	500	² Winters.....	903
¹ Danville.....	400	¹ Lomita Park.....	600	¹ Riverbank.....	200	² Woodland.....	4,147
¹ Davenport.....	300	¹ Loomis.....	500	¹ Rocklin.....	643	² Woodside.....	300
¹ Davis.....	939	¹ Los Altos.....	500	¹ Rodeo.....	300	² Yolo.....	350
¹ Decoto.....	300	¹ Los Gatos.....	2,317	¹ Roseville.....	4,477	² Yuba City.....	1,708
¹ Del Monte.....	300	¹ Los Molinos.....	200	¹ Ross.....	727		
¹ Denair.....	200	¹ Madison.....	300	¹ Sacramento.....	65,908		
¹ Dixon.....	926	¹ Manteca.....	1,286	¹ Salinas.....	4,308		
¹ Drytown.....	200	¹ Mare Island.....	600	¹ San Andreas.....	1,183		
¹ Duncan's Mills.....	200	¹ Martinez.....	3,858	¹ San Anselmo.....	2,475		
¹ Durham.....	250	¹ Marysville.....	5,461	¹ San Bruno.....	1,562		
¹ Dutch Flat.....	750	¹ Maxwell.....	500	¹ San Francisco.....	506,676		
¹ Eldridge.....	500	¹ Mayfield.....	1,127	¹ San Jose.....	39,642		
¹ El Cerrito.....	1,505	¹ Menlo Park.....	900	¹ San Juan.....	350		
¹ Elmira.....	350						

Unmarked—Electricity only.
¹—Gas only.
²—Gas and Electricity.

¹—Gas, Electricity and Water.
²—Gas, Elect. and St. Railways.
²—Electricity and Water.

¹—Electricity supplied through other companies.
²—Gas supplied through other companies.
²—Water supplied through other companies.

"PACIFIC SERVICE FACTS"

"Pacific Service" supplies power to electric railways in Central and Northern California, having approximately 1,300 miles of track, the distance between San Francisco and Denver.

The total horsepower connected to the system for this class of load is 102,831 which is greater by approximately 10,000 horsepower than the manufacturing load of San Francisco.

Operates 28 Hydro-Electric Plants.

Operates 4 Steam Electric Plants.

Operates 19 Gas Plants.



One of the highly specialized modern professions is that of the soil surveyor. His day's work consists in analyzing different types of soils and in securing information concerning what type of farming and soil treatment is best adapted to each particular kind of soil.

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Or, if you prefer to look over the list in advance, we will mail a copy to you upon request.

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PACIFIC SERVICE MAGAZINE

PUBLISHED MONTHLY BY THE PACIFIC GAS AND ELECTRIC CO. SAN FRANCISCO



THE PIT RIVER BELOW ITS CONFLUENCE WITH THE McCLOUD

Vol
14

AUGUST 1922

No
3

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Pacific Service Magazine

Volume XIV



Number 3

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OUR "PACIFIC SERVICE" SALES ORGANIZATION

Top, R. E. Fisher, vice-president in charge of sales; left, H. M. Crawford, manager gas sales department; right, D. C. Ray, manager electric sales department; lower, N. R. Sutherland, manager commercial department

Prosecuting an Intensive Sales Campaign

By R. E. FISHER, Vice-President in Charge of Sales

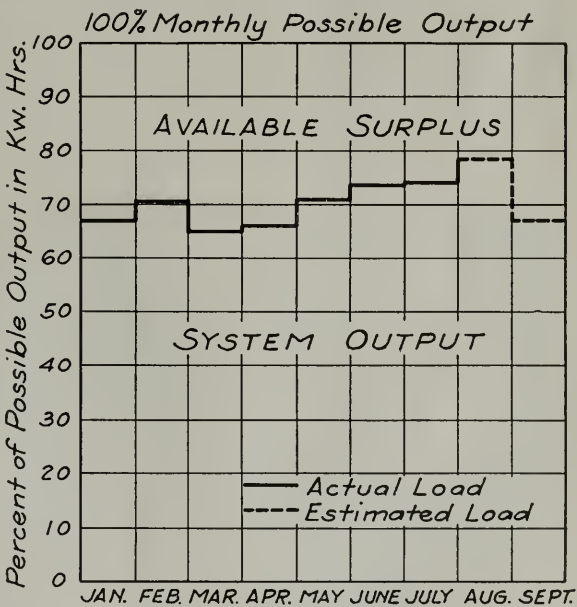
When it is appreciated that sixty per cent of the available or potential water power of the State of California lies north of the Tehachapi mountains, also that around San Francisco bay lies the greatest theater of industrial action in the world, the full importance of the development and utilization of electric power in California is apparent.

California, in its thrilling career, has passed through three eras, mining, agriculture, and the present one of industry. In meeting the demands of these three phases of industrial life "Pacific Service" is afforded the rare opportunity of supplying the most diversified load of any central station in the world.

In the past, production has always struggled to keep pace with demand. The year 1922, for the first time in our history, saw a reversal of that condition, and we are now faced with a surplus of power in such quantities as to present a real problem. Construction of generating plants under way by the various power companies throughout the state indicates a continuance of this surplus, which necessitates continued sales effort for many years to come, rather than a spasmodic or temporary campaign. As a consequence, sales effort has never before assumed the importance it now has. One of our first efforts in this direction was the popularizing of electricity for agricultural purposes. This had its effect, and today in California more power is devoted to

agricultural purposes than in the total agricultural districts of all of the rest of the United States.

With the enormous block of power added to our resources, together with the enormous possibilities of our gas generating plants, has come the added impetus and stimulus for sales work and intensive and active development of existing potential outlets for our commodities. Sales effort is fast becoming a necessary precedent of "Pacific Service." involving not only meeting existing demands, but also the creation of demand where it does not openly exist. Together with the tremendous growth of the Pacific Gas and Electric Company's resources, has come the need for an organized and strong sell-



SYSTEM OUTPUT & AVAILABLE SURPLUS
JANUARY TO SEPTEMBER, 1922
PACIFIC GAS & ELECTRIC CO.

ing force, which need has been met in the creation within the last year of Sales Departments, under the supervision of the Vice President in Charge of Sales.

The sales organization, illustrated by the accompanying charts, consists of the

sales, the head office departments co-operate and co-ordinate with divisional organizations, offering at all times a technically trained staff for consultation, advice and service in the negotiation of business.

- HEAD OFFICE SALES ORGANIZATION -

V. P. IN CHARGE OF SALES

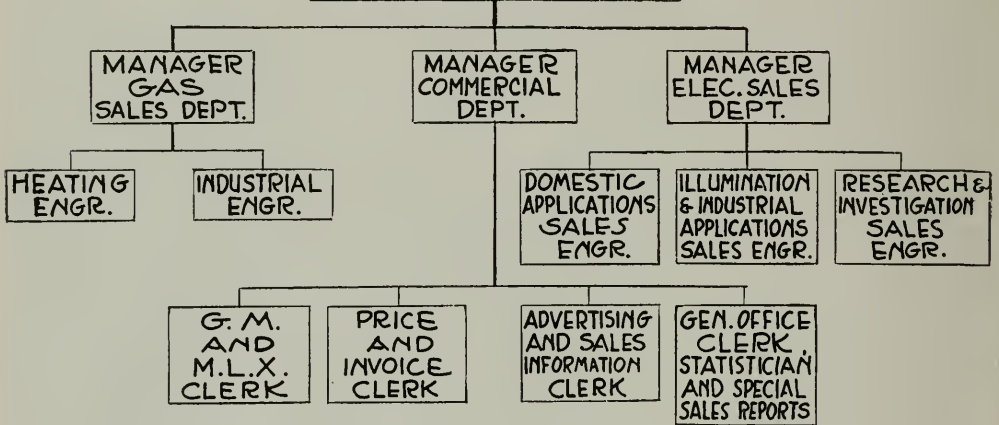


CHART I.—Sales Department Organization.

Head Office sales Department, chart I, and the divisional new business department, chart II, illustrating a typical divisional new business organization. For the growth and development of company

The duties of a divisional new business department may be briefly outlined as follows:

1. Solicitation of new business, and the sale of electric energy and gas.

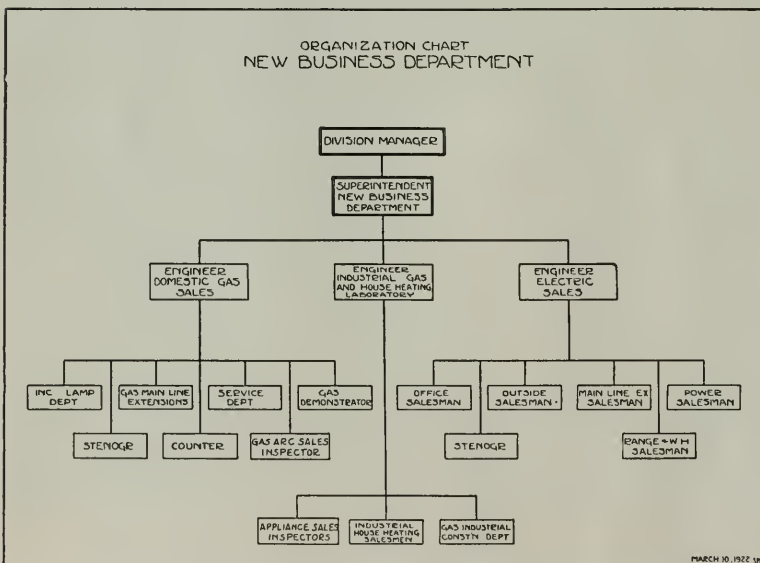


CHART II.—A typical divisional New Business Department Organization.

2. Surveys of prospective territory and extensions.

3. Resumption of idle services.

4. Surveys of isolated plants and their conversion to central station consumers.

5. Sale by the company representatives and co-operation with dealers in the placing on our lines approved

appliances of electric energy or gas consuming devices.

6. Contractual relations with consumers.

7. Study and development of new utilizations of gas and electricity.

Prospective business forms have been instituted for the use of all sales representatives, on which form all details are noted, necessary for comprehensive and systematic file of pending and future prospective business. File of such prospect cards is maintained in the division offices, and in all instances where the approximate annual revenue to be derived exceeds \$1,200, prospective business form is forwarded to the interested manager of electric or gas sales, and in the offices of the head office sales department a file of these large prospects is maintained, enabling ready reference for accurate reports and complete co-operation with all branches of the organization.

To a large extent the success of "Pacific Service" has been a result of the true co-operative spirit that exists in its several

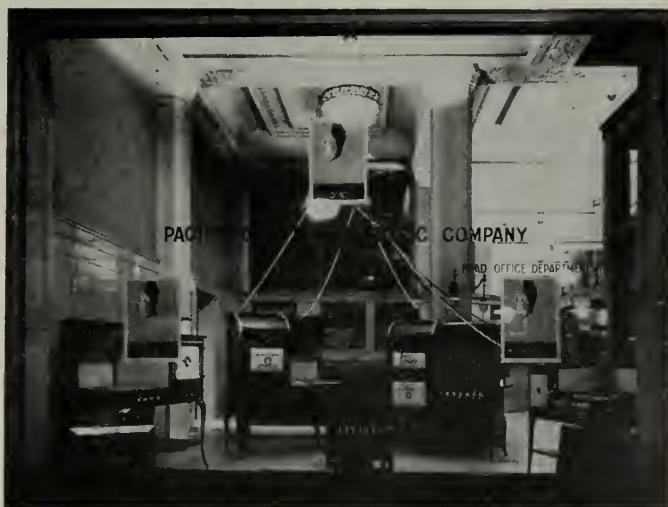
departments, and our sales organization needs this sincere co-operation most of all.

Every man in every phase of business is a salesman, to a greater or lesser degree, with perhaps a tangible, but more often an intangible saleable product. Of primary importance is the product to be sold, since the first requisite of good salesmanship is a firm belief in the product, enabling a salesman to instill in the prospective purchaser likewise a faith in his purchase, and a knowledge of and desire for the commodity. In this instance the product is "Pacific Service," courteous, continuous, offering the best we can give, and in which we have unquestioning faith. Next comes the salesman, and next the science of salesmanship with its attributes of knowledge and consequent confidence, politeness, courtesy, and the desire to serve. Sales contact with the public is first contact. Through it we either gain or lose the possibility of demonstrating a product, which, once sold, can prove its merit. No sale is complete until the customer is fully satisfied.

Increased Electric Sales

By D. C. RAY, Manager Electric Sales Department

Authorized additions to the generating capacity of the Pacific Gas and Electric Company's system, although now but only partially completed, have already resulted in an excess of electric energy over the normal demand. Upon the consummation of its present program, a large surplus of energy will result, unless our selling force, by intensive and consistent effort, can successfully dispose of a substantial



Display in the Head Office at San Francisco during the recent "June Bride Week".

portion of the increased output.

To create new methods of electrical applications, improve and expand existing applications, and to build up profitable loads in territory not now served are the major functions of the Electric Sales Department, and through its sales engineers, it has provided for and offers to the various divisions a consulting and advisory service for the accomplishment of

machines. It is therefore evident that we should, in every reasonable way, encourage further introduction of appliances and to this end we have endeavored to co-operate with the electrical industry in general. A concrete case is participation in the State-wide electric sales campaign of June 5th to 10th, known as "June Brides' Week." This campaign was productive of such excellent returns that

it should be seriously considered as an annual feature. Special attention was given to window displays and those appliances of greatest utility in the household were prominently featured. Progressive dealers throughout the state joined in this



these aims. Reports already obtained from this service have been highly satisfactory, and will be increasingly so as the division managers further avail themselves of the opportunities afforded.

Due to limitations of space, this article is, of necessity, confined to a brief description of some of the methods designed to encourage further use of electric energy on our lines.

From systematic canvasses and tests in widely separated territory, it has been conclusively shown that the energy consumed by electric appliances produces from one-fourth to one-third the total residential income, appliances being inclusive of electric washers, toasters, percolators, irons, ranges and refrigerating



An example of improved highway lighting. This type of electrolier was recently installed on Junipero Serra Boulevard, San Francisco.

co-operative movement. An example of the careful attention and hearty support given this movement is shown in the accompanying photographs. The intense interest aroused was evidenced by the number of visitors to the various exhibits, and by the large number of prospective purchasers secured.

A series of electric cooking demonstrations and displays at fairs is now in progress. In all there are sixty demonstrations and twelve fairs included. It is intended

to use some novel features in connection with this campaign that will be both attractive and interesting, and it is expected that, as a result, the electrical idea in cooking and heating will be further popularized and will measurably increase revenue from this source, which has already attained no little magnitude. During the past year there has been a material increase in the demand for electrical home equipment. Especially is this true of electric house-heating, and a very considerable number of people are now installing electric heaters in their homes. At the present time several

and window lighting, and during the fall and winter months illumination salesmen will probably be employed in the larger cities for this purpose. Plans are under way for an extensive electric sign campaign embracing all divisions, by which we expect to greatly increase this very attractive load. A survey is being made to determine the amount of street lighting in every town on the system. Full data is being secured for the purpose of determining definite standards for well lighted towns and to strive for this mark in all instances.

Efforts are also being made to introduce



A unique installation. "Pacific Service" is utilized for lighting the U. S. Shipping Board vessels at Benicia.

complete installations of this character are in progress, ranging as high as 250 kilowatts in connected load. In later articles some of these installations will be described in detail and data given on their operating costs.

During the first half of the year 1922, approximately fifty per cent more electric ranges and water-heaters were connected to our lines than for the same period of 1921. This argues well for a continued and increased revenue from a load which has many attractive features from a central station standpoint.

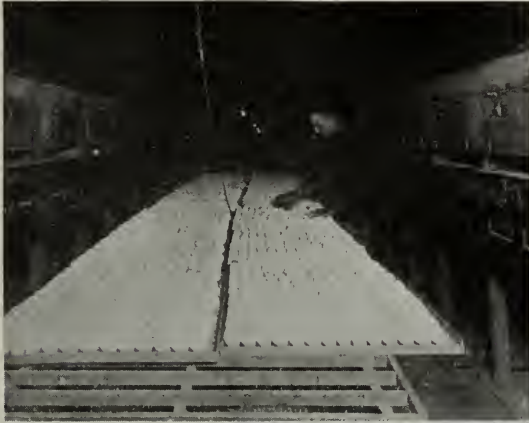
Plans are in progress to tie in with the national campaign for "Better Lighting—Better Business." There is need for a higher standard and intensity for store

new highway lighting systems, which will furnish a much needed service on country thoroughfares. The accompanying views illustrate the possibilities of this system when properly installed.

Industrial heating by electricity is still in the pioneering stages, and is handled directly by the manufacturers. In San Francisco Division a survey is being made to determine the possibility of building up new revenue with existing consumers. This survey covers industrial illuminations, heating and all applications for new devices as well as possibilities for crowding out coal and oil devices, which are being uncovered daily. These prospects are given out to interested jobbers and dealers who make the sales,

resulting in a profit to themselves and new revenue to this company. This plan will probably be later extended to other divisions.

A survey will be undertaken shortly to determine the extent and type of



industrial installations now operating on our system. Data will be gathered on these plants to form the basis of further sales, and this department will act as a clearing house for electric heating information to be sent to all salesmen over the system.

The private or isolated plants along or within economical reach of the distributing lines of the company offer a potential field for the advantageous utilization of central station service, which, when fully developed, will measurably increase the sales of the company, and render a double service in reducing operating costs to the plant owners and decreasing the economic waste incident to the large majority of such installations.

If the true facts regarding actual costs were known or realized by those finan-

cially interested, but few of these independent sources of power supply would remain in operation where it was at all possible to secure this service from a public utility, with the additional benefit of freedom from responsibility and the many annoyances inseparable from private operation.

The first step in the practical development of this field is a systematic canvass of the territory, and the establishment of a set of records containing the essential data of all existing plants of this nature. This list should be segregated into those requiring detailed analysis, and those

which can be handled by the general sales force in the line of their regular work, without such investigation.

The class needing analysis will



These chicks never knew a mother; like Topsy, they "just grew." All hatched by electric heat in the Must-Hatch Incubator Company's plant at Petaluma, largest in the world. This plant, which has a capacity of 408,000 eggs per setting, is operated throughout by "Pacific Service."

require the individual attention and uninterrupted application of one who has the time and is qualified technically and otherwise to search out the real facts

impartially, regardless of the absence of any dependable information or accurate records, and overcome the many obstacles which are inherent in work of this character.

The independent plant, like the horse, is fast outliving its practical usefulness in our highly complex form of civilization,

and when the fact has been brought home to the plant owners and has been as thoroughly established as the automobile in the transportation problem, few isolated plants will remain in use. It is our mission by careful and accurate investigation and by constant and persistent efforts to establish these facts in each and every case.

Increased Gas Sales

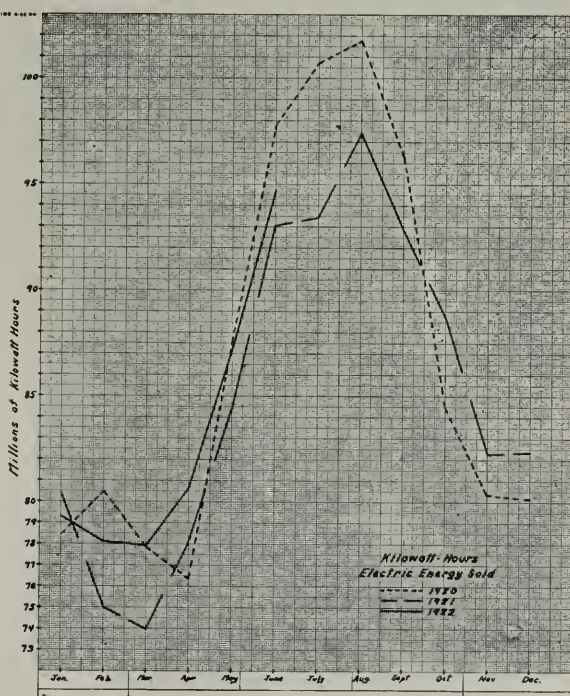
By H. M. CRAWFORD
Manager Gas Sales Department

The health and happiness of more than one-half of the people of the United States depends in a large measure upon the continued delivery from day to day of gas. The thousand gas companies in the country have invested more than four billions of dollars in the gas business to insure this service. The business of gas making in America is growing at the rate of about sixteen per cent a year. This means that, in about six years, the production of city gas in this country will be at least double what it is today.

The novelty of gas ended years ago. Its need for advertising, "COOK WITH GAS," has also passed, and today gas is rendering a greater service to the public, and is doing more spectacular and necessary work than was ever dreamed of in the hundred years it has been available to mankind. From a standpoint of economy and speed of operation, there is no fuel today that can equal gas for domestic cooking operations.

Gas companies have been very modest in the past, and have done little to advertise their business, feeling, perhaps, that there was nothing in the business of a spectacular nature which would

interest the public. It is, therefore, not generally known that the gas business has made tremendous progress, both in the method of manufacture and distribution, and in the development of perfected appliances for its use, as well as an enormous increase in sales. The Pacific Gas and Electric Company had 122,304 gas consumers in 1907, and 297,270 in



A graphic illustration of the recent increase in the sale of electricity.

1921, or a net gain in fourteen years of 174,966 consumers. This is more than the combined population of Berkeley, Alameda and Sacramento.

We are apt to fall into the error of thinking that the field for the sale of gas is well up to the saturation point, but that is far from being the case. As an example, take the city of San Francisco. During the past year about 2,000,000 barrels of oil and 93,000 tons of coal were used for industrial purposes, and approximately half that amount for domestic purposes. Much of the work done by these fuels could be done just as well, and usually more economically with gas. There are thousands of uses for gas, and more are being discovered daily. Consider what it would mean if twenty per cent, which is not much, of the work done with oil and coal were done with gas. We would add four billion cubic feet of industrial and two billion cubic feet of domestic gas to our present demand. That would

practically double our present output, and it is not too much to expect. But in addition to doubling the output, another advantage would result that cannot be overlooked. Instead of having a gas output for industrial purposes of only 17 or 18 per cent of the total, we would increase it to over 40 per cent, which is a condition greatly to be desired. But gas will not sell itself, and like everything else worth while, its sale requires hard work and a great deal of it.

The use of gas for domestic and house heating purposes has increased at a rate that has kept it more than abreast of the times. The house heating load which was very light only a few years ago, has so developed that, during the heating season of 1921, about 20% of the load was due to heating alone. It is estimated that the gas used for heating during 1921 averaged about 7 per cent of the entire gas output for the year, representing about \$750,000 in revenue. More than one thousand installations of hot air furnaces were made last year, and data based on the first six months of this year indicates that over two thousand furnaces will be installed before 1923. The steam and hot water installations are in about the same ratio.

At the present time a list of gas heating installations of various types and sizes is being prepared, together with the costs of operation over a twelve month period. With the help of this list a salesman can show his prospect the actual cost of operation of several parallel jobs, with approximately the same cubical content, glass area, wall material, etc. Until now this information has not been available, and it should be of great value to the salesmen in districts where house heating by gas has not been developed as it has in the Bay

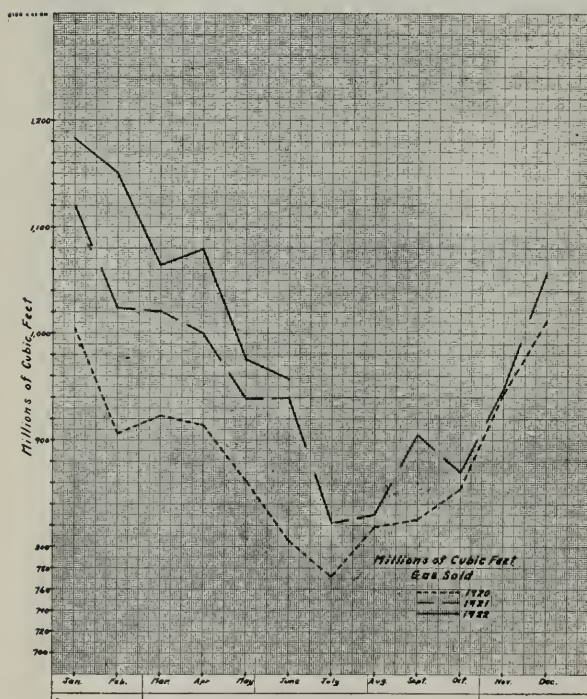


Chart showing increase in gas sales during the past three years.

region. There is no better sales argument than a list of satisfied consumers. With it, the prospect will be able to tell what it will cost him to dispense with smoke, dirt and trouble and have an ever ready supply of clean, healthful heat at the mere pushing of a button.

One instance of activity to increase the sale of gas for domestic purposes is the Red Bluff campaign of July and August.

San Jose. Mains are now being laid to supply Mayfield, Benicia, Mill Valley and Sausalito, while numerous other extensions are pending.

Gas Stove and Appliance Week, held in April, produced excellent results throughout "Pacific Service" territory, not only in actual sales during the week, but in bringing gas convenience and economy before the public. More than



Display in the Sacramento Office during Gas Stove and Appliance Week.

Local dealers co-operated with the company and offered special inducements for buying water heaters and the replacing of hotplates, kerosene, wood and coal stoves with gas ranges. As an opening feature, domestic science demonstrations were made on gas ranges to large audiences of enthusiastic women.

Evidence that the popularity of gas is increasing is shown by the number of extensions of main gas lines that have been made or contemplated during the past year. Last fall Davis was supplied by our Sacramento plant and Los Gatos from

one thousand furniture dealers and five hundred hardware dealers participated actively in this state-wide effort, and 70,000 column inches of co-operative advertising were used during the week.

"Pacific Service" maintains the largest gas appliance laboratory in the country, at 241 Stevenson Street, San Francisco. It contains every known device using gas, and is open to the public. Wonderful facilities are thus afforded manufacturers, who are welcome to use the laboratory to solve their fuel problems.

Steadily advancing in use year by year, fearing no competition, offering its service in many ways to the public, becoming less and less expensive to the consumer as it

progresses, gas each day takes up its burden and renders its service for the public, at its direction, under its control, and to the extent of public demand.



The Golden Gate Park Memorial Museum, heated throughout by gas-fired hot air furnaces.

The Relation of Commercial Activities to Sales

By N. R. SUTHERLAND, Manager Commercial Department.

In the Commercial Department are handled the many and varied commercial details of sales activities, including:

1. New Business, involving electric, gas, water and steam extensions.
2. Preparation of contract and special agreement forms, in conjunction with the Law Department.
3. Renewal of contracts.
4. Rights of way and the purchase of electric lines from consumers.
5. Sale of appliances to employees.
6. Appliance sales and prices, both gas and electric.
7. Adjustment of consumers' accounts involving commercial details.
8. Interpretation of rates, sales and commercial rules and regulations.
9. Advisory service to applicants and consumers, regarding rules, regulations and rates.
10. Sales advertising—both gas and electric.

From the above it will be observed that the administration of this important branch of our service is interesting as well as exacting.

It is the purpose of the department to establish itself as a clearing house for all divisions on matters coming under its jurisdiction, and to function as a service department, co-operating with the electric and gas sales departments in matters requiring commercial action, all of which departments are very closely allied and difficult of absolute separation.

The growth of the Commercial Department has been rapid. During the year 1920, when rates were fluctuating, it was deemed advisable to establish some sort of a bureau where large consumers, operating in our different divisions, the major portion of whom have their main offices in San Francisco, could receive advice as to their options and other de-

tails that were not readily understood by them. This service was instituted with the result that it was patronized to a large extent with benefit to the company as well as to consumers, through a better understanding of both.

It is the policy of the company to satisfy the most minute request of a consumer when not in conflict with the rules laid down and when not unreasonable. Adjustment of large consumers' accounts, in which commercial questions are involved, requires careful consideration and all phases of the problem are thoroughly covered before a settlement is reached. The consumer's side of the complaint is very patiently and conscientiously gone into, and every consideration given to the slightest misunderstanding. The company's interests are then considered, and after due deliberation and weighing of both sides, a decision is reached as to the best method of settlement. It can be truthfully stated that every complaint or adjustment coming to our attention has been handled to the best of our ability, with full consideration to both the consumer's and company's interests.

Service and pleasant relations with our consumers are the most important functions of the Commercial Department. To give a consumer a clear understanding of the problem that disturbs him, to explain why the rules of the company are made, and to apply our rules to the particular problem involved is well worth the effort.

At the beginning of the year 1922, the sales advertising of our company took on a very new aspect, in that, where previously sales copy originated from many sources, it now follows a definite schedule or plan.

At regular intervals, meetings are held between the heads of the Sales Departments and the Johnston-Ayres Company, our advertising agents. At these meetings various points and ideas are suggested and discussed, and from these a definite sales advertising plan is outlined. The subjects, as covered by this plan, are determined from a careful study of the sales situation at the time, depending a

great deal upon the time of year and the local conditions throughout our territory, and are guided by the suggestions and requests of the various divisions.

The sales advertising is designed mostly to develop and encourage greater uses of current-consuming or gas-consuming devices that will operate at off peak load times and thus fill up the valleys in our load curve, making for better plant operation and better service. It is readily apparent from this that the advertising depends very materially upon seasonal changes.

The thought and purpose behind each sales advertisement is to convince the prospect or consumer that the appliance advertised is one that he should have, that it will suit his needs, and give him economical and reliable service. From a salesman's viewpoint, an advertisement bears this purpose, that it will acquaint the reader with the appliance and drive from his mind his most serious oppositions to its purchase and use, this breaking down sales resistance.

Our sales advertising always gives due consideration to the fact that legitimate merchants and dealers in gas and electric appliances are located in the various communities in which we serve, and are entitled to our full support and co-operation, bearing in mind that our chief function is to manufacture and deliver our main commodities, gas and electricity, this relation resulting in a partnership between the dealers in these appliances and ourselves who manufacture the commodities to be used. The dealer is given advance information as to what the advertisement is to cover, and where possible, is furnished with proofs of the advertisement. Also the idea of co-operation is carried right in the copy, "See your Dealer."

Extensive plans are now under way whereby our advertising will be of still greater value as a sales help, and there is no question that the fall advertising and the plans as already outlined for next year will now carry the message of a greater sales service.

More Press Comments on Our Pit River Excursion.

"The organization of the Pacific Gas and Electric Company might well be studied with profit by other public service corporations. There is harmony between the officers, employees and stockholders."
—*Los Gatos Mail News*.

"As an educational feature these excursions will be worth many millions of dollars to the people of California, because, to know what is being done by this great power company, will mean the support of all progressive citizens."

"This enterprise has been rightly called 'the people's' enterprise, because thousands of Californians own stock in the company and others are coming to realize the great value of being identified with an organization that is destined soon to become the greatest factor in the economic life of California."—*Solano Republican*.

"As we all so well know that the future age will be electrical and this great state will be one of the largest consumers, the P. G. & E. is preparing in a way never before attempted, in the electrical engineering world, to supply the needs of the people for years to come."—*Oakland Advance*.

"One of the things that most forcefully strikes the visitor is the unfailing loyalty of every man and woman in any way identified with the P. G. & E. From the president down to the concrete mucker, all are enthusiastic workers."—*Vacaville Reporter*.

"Important as may be the dam, the canal, the tunnel, the surge chamber, the steel tubes and the power house itself, with its maze of machinery, greater than all of these is something that capital cannot buy. It is the remarkable unity, the splendid spirit of co-operation, shown by every man, be he official or ditch

digger, toward one common end. He has caught a share of the vision about to become a reality, and is bending his every energy, no matter how small, in the accomplishment of that vision."—*Orland Register*.

"It was a wonderfully interesting and educational trip for all."—*San Anselmo Herald*.

"After viewing the Pit River development the editor of the Tribune now feels that he can install an electric burner under his linotype metal pot without overtaxing the P. G. & E. system."—*Dixon Tribune*.

"It is doubtful if there ever has been any similar excursion held anywhere which was of more genuine educational value and pleasure than that enjoyed by the guests of the P. G. & E."—*Livermore Herald*.

"We doubt if there was ever an excursion so well managed, so well carried out from beginning to end, and where everybody was so uniformly well treated as was this one. If that is what 'Pacific Service' stands for we want more 'Pacific Service'."

"The trip was 'our party.' Every one in the employ of the P. G. & E. with whom we came in contact was an enthusiastic committee of one in furnishing information."—*Rio Vista News*.

"I want to say that I saw a living, breathing, moving spirit of co-operation, of fellow feeling, of human understanding and of helpfulness manifested by every man, woman and child in a great construction camp away up there in the Sierra Mountains. I want to testify that I have seen a corporation that has a soul."
—*Mountain View Register*.

"One marvelled at the organization that 'P. G.,' the sprite of progress, has devel-

oped. Everything had its place, every bolt, nut, screw, or bar, was conceived, thought out, designed and planned two hundred miles away, to eventually take its place in the sphere of things, up here under the forests of the north."—*San Francisco News Letter*.

"The excursion itself was planned with such precision and regard for its educational aspects that it made a most distinctive impression. In its public service, there can be no question that the Pacific Gas and Electric Company has set up for itself, and succeeds in adhering to, a high standard."—*San Francisco Business*.

"The tour of inspection not only broadened the vision in regard to the conservation of power for turning the wheels of industry, but it brought together minds of high mental voltage, men who in their 'obscurity' needed this kind of an outing to get them out of their shells. The informality of these expeditions and gatherings have given the country newspaper publisher a tip that the slogan, 'Stick, brother, stick,' can only be made effective by getting together occasionally and discussing and exchanging ideas."—*Richmond Terminal*.

"The editor of the Ledger was very much pleased with the trip and appreciated the opportunity of rubbing elbows with men of 'Pacific Service' calibre."—*Amador Ledger*.

"The company is preparing in a way never before attempted in the electrical engineering world to supply the needs of the people for years to come."—*Los Molinos River Rambler*.

"A real project, by the people, for the people and of the people."—*Berkeley Courier*.

"Scarcely less wonderful than the project is the organization of the company itself, all of its units being connected as are the nerves of the body, the whole combining to make the justly famous 'Pacific Service.'"—*Auburn Journal*.

"After spending three days in the Pit River country as guests of the power company, the newspaper men who made the trip have gained some understanding of the situation."—*West Side Index, Newman*.

"The newspapermen who made the trip were of the united opinion that it was one of great instruction in seeing, at first hand, what a great public service corporation can do, giving employment to thousands of men and spending millions of dollars right at home."—*Cottonwood Enterprise*.

"It would be impossible to create that spirit of co-operation, which exists under the supervision of this privately owned corporation, under city or state ownership, as political influence would intervene and play a great part."—*The Wasp, San Francisco*.

"The excursion and the splendid treatment of the Pacific Gas and Electric Company will live long in the memory of every editor who attended."—*Redwood City Times Gazette*.

"The newspaper men returned to their homes, each thoroughly convinced that the developments now under way will place the company in a position to anticipate all requirements for many years to come."—*Sonora Union Democrat*.

"By reason of the trip the P. G. & E. will hold a warmer spot in the hearts of the California editors, not so much as an appreciation of a good time, but as an appreciation of the problems and work of the company and the wonderful spirit which pervades its personnel as the great work is accomplished."—*Winters Express*.

"'Pacific Service' is a big factor, not only in state building, but also an example of what can be accomplished between employer and employee."—*Los Gatos Mail-News*.

OUR "PACIFIC SERVICE" EMPLOYEES ASSOCIATION



The al fresco feast under the trees at Alum Rock Park.

Alum Rock Park, situated among the hills close to the lower slopes of Mt. Hamilton, was again the chosen spot for our association's annual picnic this year. This event of the organization's social life is, like all its other events, assuming larger and larger proportions yearly. This year's committee, of which Mr. A. M. Jeppeson of San Jose Section was chairman, discovered that it had no small undertaking on its hands in providing transportation, refreshments, and entertainment for the record breaking crowd that assembled on Saturday, July 29th. Needless to say, however, the committee

thoroughly vindicated the trust reposed in it and every detail was successfully carried out.

The crowd began to arrive early Saturday morning. They came from every section of our company's territory, some by auto but the majority by special train from San Francisco to San Jose, where connection was made with the electric cars that carried the party directly into the park.

Nearly a thousand hungry but happy members, with their friends and families, gathered beneath the trees and waited with more or less patience for the promised

barbecue to be served.

With the able assistance of several division managers and a vice-president or two the luncheon was served on time and served well. There were even white tablecloths on the tables, which had been placed under the dense shade of the trees. The bounteous menu, consisting of olives, pickles, combination salad, barbecued spring lamb, Spanish beans, corn-on-the-cob and strawberry ice cream, gave no one an opportunity to go away hungry.

Immediately after the barbecue the "stunts"



Too many cooks oft times spoil the broth, but this time was the exception to the rule. Chefs "Cap" Baldwin, Ed Florence, John Kuster, Willis Yard, Charlie Northcutt and Harry Ross taking their own nourishment after serving the guests.



Charlie Northcutt wheeled Charlie Larrabee to victory in the division managers' race.

began, which included several races for the kiddies, a ladies' nail driving contest, a rope throwing contest and a division managers' race. The latter, a gruelling contest, was won by the redoubtable Charlie Northcutt from Modesto, who received, as a reward for his prowess a beautiful miniature wheelbarrow, symbolic of the vehicle in which he wheeled Charlie Larrabee to victory.

The rope throwing contest was won by Frank W. Torrey of San Jose, who cast the line a record breaking distance of 109 feet, nine inches, over twice the distance thrown by his nearest competitor. Charles Bez of San Leandro won the pole climbing contest, completing the ascent and descent in eighteen seconds. In the gas contest, which consisted of the installation of a gas meter and connecting it with a gas plate, the prize for speed was won by the East Bay team, while the laurels (and money) for neatness went to San Francisco.

The judges were: field events, J. S. Worthington, G. H. Canfield, H. T. Terry; pole climbing, E. G. McCann, E. H. Steele, F. R. George; gas contest, H. M. Crawford, W. S. Yard, W. G. Vincent, Jr.

The big event of the day was the first aid and resuscitation contest, in which four teams of six men each, representing four of the company's divisions, competed for cash prizes in first aid work assigned from the First Aid Manual.

The first problem was a two minute demonstration of artificial respiration. The "patient" was discovered, apparently not breathing, lying on his back, with shoulder and upper part of both arms in contact with a live electric wire. The teams first demonstrated three different methods of rescue, removing the man from the wire to a point of safety. First aid resuscitation methods were then applied. The day was quite warm and the "patient," responding to the ministrations of five men, was indeed a "patient" in more than one sense of the word.

Problem number two was chosen at random from the First Aid Manual, the teams being required to treat the following complication of injuries: Simple fracture of both bones of right forearm, deep lacerated wound on right arm above elbow, wound on point of chin and dislocated right knee. The patients were swathed with bandages and splints and examined by the judges. Still another exhibition however was necessary before the prizes could be awarded. The third problem was the treatment of a broken back, complicated by a severe cut on the left wrist.

The awarding of the prize to the winning team required long and serious consideration, although the judges were all expert safety or medical men. Each team started with a perfect score of 300



Charles Bez of East Bay won the pole climbing contest.



Dr. G. H. Richardson, Pacific Coast Director of the American Red Cross, awarding first aid medal to Henry H. Buell, captain of the winning San Jose team.

points and deductions of a specified number of points were made by the judges for such errors as "failure to do the most important thing first," "slow and indifferent work," "awkward handling," etc. The first prize of \$50 and also the first aid medals, furnished by the American Red Cross, were awarded to the San Jose team, who scored 278 points out of a possible 300. San Francisco won the second prize of \$30 with 272 points and San Joaquin the third prize of \$20 with a score of 271. The judges, headed by Dr. G. H. Richardson, Director of the Pacific Coast Division, American Red Cross, were: Rodney B. Hecox, U. S. Bureau of Mines; Major R. D. Harden, Medical Corps, U. S. A.; Dr. Wm. J. Haber, San Francisco; Dr. Chas. A. Dukes, Oakland; Dr. Mark F. Hopkins, San Jose; Dr. J. D. Dameron, Modesto; H. M. Wolflin, Superintendent of Safety, Industrial Accident Commission, E. W. Bullard and N. C. Susan of E. D. Bullard & Co., San Francisco; and G. E. Kimball, Industrial Accident Commission.

The first aid contest was under the direction of V. R. ("Safety") Hughes, who also turned out to be the "Mysterious Mr. Raffles"

of the occasion. Mr. Joe Worthington, of Oakland, was successful, after a thorough and persevering search, in capturing this mysterious personage and in capturing also the \$15 prize. The captor states that he succeeded in his search by process of elimination, having spoken the mystic words of greeting to at least half of the picnickers before discovering the right one. However, we suspect Mr. Worthington of indulging in a correspondence course in some "Be-a-detective" college, especially since it was he who also succeeded in capturing the mysterious personage at the picnic two years ago.

It was a go-as-you-please affair, the picnic. Most of the crowd witnessed or participated in the various stunts and contests, others, however, danced in the pavilion, where excellent music was provided. Others cooled off in the bathing pool, while still others merely sat under the shade of the trees and enjoyed the warmth and fresh air. It was a well planned and managed affair and it was a tired but happy crowd that finally left for home after the festivities were over.

This is the committee who so efficiently managed things: General Chairman, A. M. Jeppesen; Transportation, E. C. Wood; Barbecue, E. A. Danforth; Barbecue tickets, C. F. Barnes; Sports, S. Trengrave; Gas Contest, H. Hargraves; Pole climb and rope throw, E. B. Shoenenberger; Grounds and property, Fred G. Maynard; Reception, J. F. O'Neil; Dancing, R. B. Rigby.

H. S. F.



The San Jose First Aid Team, winners of the contest.

Coming Convention Plans Discussed By Gas Men in Los Angeles

By WM. M. HENDERSON, Secretary, Pacific Coast Gas Association

Members of the Pacific Coast Gas Association, 243 strong, got together for the third dinner meeting of the year in the rooms of the Los Angeles Athletic Club on the evening of Saturday, August 5th.

The gas men, many of whom came from as far away as Tacoma, Seattle and Portland, as well as the delegation from northern and southern California, arrived on the morning of the event and assembled at the headquarters of the Southern California Gas Company, where they were welcomed by Frank S. Wade, Vice-President of the Association. During the day they were conducted through the natural gas fields about Los Angeles, including Signal Hill, Santa Fe Springs and the Placentia-Richfield fields of Orange County.

The evening's meeting, at which Vice-President Wade presided, was devoted partly to a discussion of plans for the coming convention, which will be held at Santa Barbara from September 19th to 22nd. Mr. Wade announced that many new and interesting features will form a part of convention activities this year, among them the revival of a gas appliance exhibit, demands for space in which have already exceeded the space available. The convention program provides that a part of the session be given over to each of the various interests that constitute the association. The first meeting, to be held Tuesday morning, September 19th, will be devoted to general business. The afternoon session will be in charge of Chairman Moore of the Accounting Section. On Wednesday, E. L. Hall, Chairman of the Technical Committee, will preside, and present reports on subjects that are at the present time attracting the attention of the gas engineering world. Mr. Hall's program will include a final report of the Joint Committee on the Efficiency and Economy of Gas. On Thursday Mr. R. E. Fisher, Chairman of the Commercial Section, will present a discussion of the commercial problems related to the industry. Mr. Fisher's program also provides for talks by three business men not directly connected with

the gas business. The last day, Friday, will be devoted to recreation and sight-seeing. Complete details of the convention program are to be announced later by the Secretary of the Association.

A report presented to the Chairman disclosed a total membership of 745, including 92 new members as a result of the recent new membership contest. Of these new members fifty have been recruited by the Southern Section, 29 by the Central Section and 13 by the Northern. A message was received from President Bostwick regretting his inability to attend and expressing his appreciation of the splendid support that has been given his administration.

After the disposal of the business of the meeting Mr. Wade presented Mr. L. S. Ready, Assistant Engineer of the California State Railroad Commission, who spoke on the subject of "Public Utility Regulation." In this he reviewed regulation legislation and its interpretation by the Commission. Mr. Ready's talk proved intensely interesting and illustrated the value of the part played by the regulating body.

The next speaker was Mr. H. L. Carnahan, former State Corporation Commissioner, who presented the subject "Financing the Public Utility," a subject of timely and general interest.

The last speaker was Mr. Luther Brown, Attorney at Law, who discussed the proposed legislation known as the California Water and Power Act, which will appear on the ballot next November. This bill he branded as a vicious piece of political scheming which proposes to plunge the State into an experiment in the water and power business at the expense of the people. He impressed upon his audience the necessity of not only defeating the passage of the act but of defeating it by such an overwhelming majority that it will become a dead issue in the future.

The meeting was a record-breaker in point of attendance and augured well for the success of the annual convention at Santa Barbara.

The Financial Side of "Pacific Service"

Following is condensed comparative Income Account Statement for the six months ended June 30, 1922, compared with the same period of the preceding year:

CONSOLIDATED INCOME STATEMENT (Including operations of Mt. Shasta Power Corporation)

SIX MONTHS ENDED JUNE 30TH

	1922	1921	Increase	Decrease
Gross Earnings, including Miscellaneous Income.....	\$19,490,813.00	\$18,967,185.93	\$523,627.07	.....
Maintenance, Operating Expenses, Rentals, Taxes (including Federal Taxes) and Reserves for Casualties and Uncollectible Accounts.....	11,900,146.58	12,226,411.17	.....	\$326,264.59
Net Income.....	\$ 7,590,666.42	\$ 6,740,774.76	\$849,891.66	.....
Net Interest Charges.....	2,517,338.37	2,444,072.18	73,266.19	.....
Balance.....	\$ 5,073,328.05	\$ 4,296,702.58	\$776,625.47	.....
Bond Discount and Expense.....	222,733.05	192,599.23	30,133.82	.....
Balance.....	\$ 4,850,595.00	\$ 4,104,103.35	\$746,491.65	.....
Reserve for Depreciation.....	1,790,920.61	1,534,538.86	256,381.75	.....
Balance.....	\$ 3,059,674.39	\$ 2,569,564.49	\$490,109.90	.....
Dividends Accrued on Preferred Stock (6%).....	1,259,454.93	1,061,221.90	198,233.03	.....
Balance.....	\$ 1,800,219.46	\$ 1,508,342.59	\$291,876.87	.....
Dividends Accrued on Common Stock (5%).....	866,507.47	850,439.78	16,067.69	.....
Balance.....	\$ 933,711.99	\$ 657,902.81	\$275,809.18	.....

During the first six months of the current year our capital expenditures for additions and betterments amounted to \$9,885,000, indicating that we will expend somewhere around twenty millions of dollars this year for new construction. A considerable portion of this money represents expenditures for our hydro-electric developments on Pit River. When the first large unit of this project is placed in operation in September of this year, we will have a surplus of power. In view of the fact that it takes about two years to build any hydro-electric plant of any considerable size, it is desirable to have a surplus sufficient to tide over this construction period.

Our Plants and Properties Account on June 30, 1922, stood at one hundred ninety-three millions of dollars, reflecting an additional investment in our properties of twenty-one million two hundred thousand dollars in the intervening period of

twelve months. This additional investment is naturally reflected in increased earnings.

As of June 30, 1922, we were serving 613,031 customers, an increase of 33,066 in the twelve months to that date. In the first six months of 1922 we made a net addition of 14,062 customers, as against 10,606 in the same period of the preceding year. This is a reflection of improved business conditions throughout our territory, another indication of which is found in our larger sales of electric energy to all lines of industry except mining, in which there is still a slight decline.

REDUCTIONS IN GAS RATES

Effective July 15th, the price of oil residuum used in the Company's gas making operations was reduced 25¢ per barrel, followed by another 25¢ reduction effective July 25th. The benefit of these reduced costs has been passed on to our customers in the shape of reductions in gas rates, making three rate reductions in the last twelve months aggregating from 17¢ to 25¢ per thousand cubic feet.

As shown by the following table, these reductions result in an annual saving to the various communities in Northern California served by the Company of over two millions of dollars:

	Annual Sales cu. ft.	Rate Reduction per 1,000 cu. ft.	Annual Saving to Consumers
San Francisco.....	6,000,000,000	17¢	\$1,020,000
Oakland, Alameda, Berkeley, Piedmont and Albany..	3,700,000,000	17¢	629,000
Fresno.....	500,000,000	20¢	100,000
Sacramento.....	490,000,000	20¢	98,000
Hayward, Richmond and San Leandro.....	180,000,000	18¢	32,400
Redwood City, Hillsborough, San Mateo, South San Francisco, Daly City and Burlingame.....	420,000,000	18¢	75,600
Vallejo.....	140,000,000	21¢	29,400
San Rafael, San Anselmo, Corte Madera, Fairfax, Ross, Kentfield, Larkspur and San Quentin.....	124,000,000	21¢	26,400
Chico.....	52,000,000	23¢	12,000
Marysville and Yuba City.....	52,000,000	23¢	12,000
Napa.....	44,000,000	23¢	10,000
Santa Rosa and Sebastopol.....	76,000,000	23¢	18,000
Petaluma.....	66,000,000	23¢	14,700
Colusa.....	17,000,000	25¢	4,250
Oroville.....	23,000,000	25¢	5,750
Woodland and Davis.....	36,000,000	25¢	9,000
Nevada City and Grass Valley.....	20,000,000	25¢	5,000
Los Gatos.....	19,000,000	25¢	4,750
Redding.....	15,000,000	25¢	3,750
Red Bluff.....	13,000,000	25¢	3,250
Willows.....	17,000,000	25¢	4,250
San Jose.....	430,000,000	18¢	77,400
TOTAL.....	12,431,000,000		\$2,194,900

Average reduction per thousand feet, entire system—17.65¢.

Pacific Service Magazine

PUBLISHED IN THE INTERESTS OF ALL EMPLOYEES OF THE
PACIFIC GAS AND ELECTRIC COMPANY

JOHN A. BRITTON - - - - - EDITOR-IN-CHIEF
FREDERICK S. MYRTLE - - - MANAGING EDITOR
A. F. HOCKENBEAMER - - - BUSINESS MANAGER

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The Pacific Gas and Electric Company desires to serve its patrons in the best possible manner. Any consumer not satisfied with his service will confer a favor upon the management by taking the matter up with the district office.

VOL. XIV AUGUST, 1922 No. 3

EDITORIAL

During the early part of July our company's management organized two excursions to our Pit river hydro-electric development for representatives of the daily and weekly press of our "Pacific Service" territory.

Some ninety newspapers were represented in these excursions, which were undertaken not merely in the interests of "Pacific Service" as an institution but more directly for the purpose of spreading broadcast among the people of north-central California, through the best available medium of dissemination, the fullest information concerning our company's part in a colossal undertaking in which all the great power companies of the state are joined and which, when carried into execution, will place California in an unrivaled position among the progressive states of the Union in every phase of twentieth century development.

The invitation sent out to the press in perfect good faith on the part of our company was accepted in equal good faith by every editor who was in a position either to make the trip in person or to send a trusted representative in his place. In arrangement and carrying out the two excursions were identical, and with great pleasure we record their complete success from every point of view. Not one of our guests on either occasion but expressed himself—or herself, for the fair sex was represented—amazed as well as instructed by what our engineers had to show as a

result of something less than two years' labor in the Pit river region. Without exception, the articles in which our guests subsequently recorded their impressions of the trip paid tribute to our "Pacific Service" enterprise in no niggardly terms.

Our issue of last month contained an account of the excursions followed by excerpts from the articles referred to. In the present issue we present some more press comments for perusal. We think we are justified in feeling proud of what the press has had to say, and what pleases us most, perhaps, is the evidence throughout these articles of a general recognition of "Pacific Service" as not merely a corporate machine for the generation and distribution of a useful commodity, in other words, a merely commercial undertaking for gain, but, better still, as a collection of human beings banded together in a common cause, each giving the best that is in him to the working out of a destiny, and that destiny the great future that lies before the commonwealth of which he is a part.

It would be invidious to select from the many journalistic tributes paid our undertaking. We cordially invite their perusal at the hands of our readers.

"Real public ownership results from sale of securities by Pacific Gas and Electric Company" is the title of a two-page article in which Public Service Management, an Eastern periodical devoted to the exploitation of public service enterprise, in its August issue lays before its readers a detailed account of the progress of the customer ownership campaign inaugurated by our company in 1914 and prosecuted to the present day with, the journal states, advantages on both sides in the purchase of securities by customers. In an editorial in the same issue the following tribute to our pioneer enterprise appears:

"As a pioneer in this customer-partnership movement "Pacific Service" has accomplished not only a splendid thing for the utility industry but it has done well in giving California the only real public ownership of utility property which can ever remotely approach success. It has fostered and encouraged the spirit of thrift throughout the community in which it operates. Many a California

boy and girl, doubtless, will obtain a college education because his or her parents were wise enough and far-sighted enough to read and to understand the arguments advanced by the Pacific Company in advocating the sale of its stock. Many a man and woman will approach old age without fear because he knows his anchor to windward is secure, because his securities are invested in an enterprise which is essential to his neighbors and which will provide him with a competence in the years to come when he is no longer able to support himself.

"By selling its securities, the company has also educated the public in utility affairs. The assertion of the Good Book that 'where a man's treasure is, there will his heart be also' is as true today as it was when the Nazarene preached along the shores of Gallilee. The man with his savings invested in a utility security will take pains to find out how that money is being used. By so doing he will learn the high service standards which the utility companies impose upon themselves and have imposed on them by the various regulatory tribunals under the jurisdiction of which they operate. He will learn of and be surprised, doubtless, at the pains taken by utility executives to promote efficiency and to give service at the lowest rate possible without sacrificing the property. And when he learns these things he will be more ready to co-operate with the utility in giving that sort of service which the utility feels in duty bound to give. He will know how to distinguish between the yaps of the demagogue which every utility fears and the constructive criticism of the clear-thinker, which every utility welcomes. He will learn that the purpose of the utility is to serve and he will permit nothing to interfere with that service.

"Customer-ownership and customer-partnership pay big dividends, not only to the utility company but to the public as well."

It is, perhaps, not necessary to remind our readers that our company is recorded as the pioneer of the customer-ownership plan. Its position in this regard has been officially recognized by the National Electric Light Association and all kindred organizations in this country.

Records made public by the State

Railroad Commission of Wisconsin indicate a distinct trend from municipal operation of lighting plants to operation by privately owned corporations, which seem able to produce more cheaply. In 1915 seventy-nine municipalities generated their own electricity; today only thirty generate it. Last year only twenty-eight municipal plants purchased their energy from private companies; today sixty-eight such plants are purchasing it. Commenting upon this showing the San Francisco Chronicle observes:

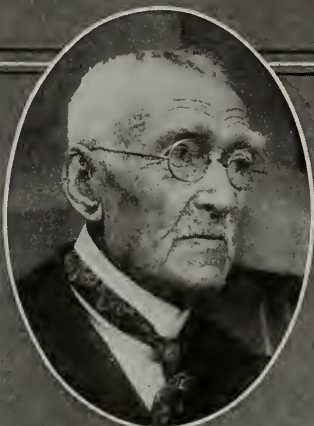
"So long as private enterprise is willing to provide the money, assume the risks, do the work and stand the worry of performing essential services for the public and allow public authority to fix the compensation, it is, of course, very stupid for the public to take up the job on its own account."

California is now the greatest hydro-electric power State in the Union. Over one-fifth of all the electric power generated by water is produced in California. Last year, according to figures announced by Engineer H. D. McGlashan of the water resources branch of the United States geological survey, 3,227,261,000 kilowatt hours were produced by water power in California. New York, which comes next with 14.72 per cent of the total, made 2,203,564,000 kilowatt hours.

Heretofore, with the advantage of Niagara Falls, New York has led all the States in the production of hydro-electric power. In 1920 California, with a production of 2,568,541,000 kilowatt hours, made 15.91 of the total hydro-electric power in the United States; New York, with 3,029,263,000 kilowatt hours, led with 18.76 per cent.

Of the total electric power produced in the United States both by water and fuel, New York made 6,170,706,000 kilowatt hours, or 35.7 per cent, and California 3,982,938,000 kilowatt hours, or 9.72 per cent.

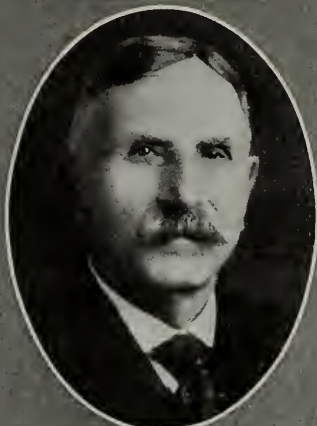
The ten leading states in hydro-electric power in 1920 were New York, California, Washington, Montana, South Carolina, Michigan, Iowa, Pennsylvania, Idaho and Georgia. Last year California and New York exchanged positions; South Carolina moved from fifth to fourth place, Michigan from sixth to fifth and Montana from fourth to seventh.



DANIEL F. MCCARTHY



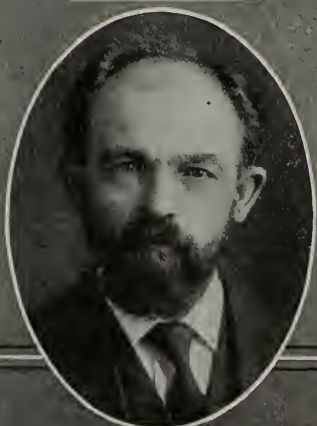
J. W. HALL



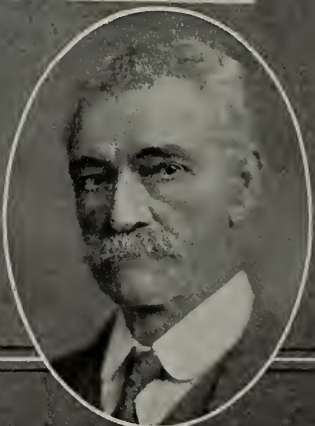
O. E. CLARK



LOUIS RESSER



FRANK KRIEGER



THOMAS BURKE



The "Pacific Service" pension roll. The above portraits are of six former employees whose long and faithful service has entitled them to honorable retirement.

The "Pacific Service" Roll of Honor

Heading the honor roll of "Pacific Service" are 64 names of men whose long and faithful service to our company has been rewarded by their honorable retirement with provision for their declining years under our company's pension system, which underwent complete revision last fall.

In the last six issues we presented the portraits of fifty-four men whose names are upon our company's pension roll, accompanied by their several service records. In doing this we were actuated by a desire to make our readers acquainted with these men and their records and to point out what is generally recognized in all up-to-date business enterprise, namely, that long and faithful service shall have its reward.

Opposite this will be found the seventh installment, consisting of six portraits of our company's pensioners arranged according to terms of service. These are.

DANIEL F. MCCARTHY. 81 years of age, having been born May 2, 1841. Entered the service of the Oakland Gas, Light and Heat Company January, 1889, and at the time of retiring on a pension, July 1, 1922, was employed in East Bay Division.

J. W. HALL. 75 years of age, having been born January 29, 1847. Entered the service of the Stockton Water Company in July, 1899, and retired on a pension March 1, 1921, at which time he was manager of Stockton District.

O. E. CLARK. 78 years of age, having been born February 17, 1844. Entered the service of the Napa Gas and Electric Company July, 1899, and retired on a pension September 1, 1914, at which time he was manager of Napa District.

LOUIS RESSER. 68 years of age, having been born February 19, 1854. Entered the service of the Sacramento Electric, Gas and Railway Company March, 1900, and retired on a pension June 1, 1921, at which time he was employed in Sacramento Division.

FRANK KRIEGER. 69 years of age, having been born in 1853. Entered the service of the Oakland Gas, Light and Heat Company March, 1901, and at the time of retiring on a pension, June 1, 1919, was employed in East Bay Division.

THOMAS BURKE. 68 years of age, having been born in August, 1854. Entered the service of the Pacific Gas Improvement Company in June, 1901, and at the time of retiring on a pension, February 1, 1921, was employed at the Potrero plant.

Tidings From Territorial Divisions

East Bay Division

The commercial reports of Oakland for July show substantial gains in the lines which serve as barometers of progress. The total bank clearings amounted to \$56,250,243 as against \$54,115,848 for the preceding month. A percentage gain of thirty-seven and one-half per cent was made over the clearings of July 1921, which exceeds that recorded by any other California city. An exceptionally high figure was reached in the value of building permits issued, the total being \$3,381,045, covering 773 permits. Dwelling flats and apartments were represented by 289 permits valued at \$1,269,732, office buildings, schools, stores and industrial structures accounted for \$2,048,353 and alterations and repairs for \$62,960.

During the first six months of this year a total of 2,367 new telephones were placed in service in the East Bay cities. The service installations of the East Bay Water Company totaled 3,272 for the district, of which 1,936 were made in Oakland, 729 in Berkeley, 91 in Piedmont, 17 in Emeryville and 117 in Alameda.

Work has started on the factory of the Irvington Aluminum foundry, which will increase its capacity from a dozen to thirty workmen, and which will enable the foundry to branch out and enter the industrial field in another line. With the completion of the present addition, the factory will start the manufacture of two varieties of ranges.

San Leandro gained another year-round payroll when the Moeller Pickle Company bought the Heinz plant there, which has not been worked steadily for some years past.

When the present improvements are concluded, and the new machinery in-

stalled, the Moellers will start manufacturing their wares, which have been established for many years. The products packed by them have established themselves in many remote parts of the earth which are not usually thought of as heavy pickle consumers. Sweden, Siberia and the Hawaiian Islands are heavy buyers of the new San Leandro output.

Announcement is made of the beginning of work by the General Electric Company upon the site purchased by them last fall in East Oakland. The first unit to be erected will contain the local and factory offices, the switchboard factory, an entirely new meter and instrument laboratory and service shops. This is to be only the first unit to be erected upon the twenty-four acre site in East Oakland. This important announcement came officially from Dr. Thomas Addison, district manager for the General Electric Company.

The erection of special plants to serve the Pacific Coast territory is not a new departure of the General Electric Company. They have operated an incandescent lamp factory in Oakland since 1910, producing 12,000,000 lamps yearly for the Pacific Coast trade.

The greater facilities afforded by the new plant and special connections with the Western Pacific and Southern Pacific railroads will enable these branches of the General Electric organization to render the Pacific Coast electrical industry a service second to none.

Three acres at High and East Tenth streets will house the \$350,000 plant soon to be erected by the Gay Engineering Corporation, of Los Angeles, manufacturers of refrigerating machinery.

The new plant will command some 130,000 square feet of floor space and will employ 250 people.

Work has been started on the plant planned for the Cleveland Metal Products Co., at 45th and Hollis Sts., Emeryville. The eastern company comes into possession of 30,000 feet of floor space in a most modern plant, and will combine in the new building general offices, assembling plant and distribution center.

Every possible modern feature is being included in the new plant. Spur tracks are depressed to make the loading platform "car high." Both overhead and side-wall lighting insure maximum illumination at all times. Cafeteria, rest-rooms, etc., will insure the comfort of those employed in the plant.

Announcement comes of the establishment of another new plant in Oakland, the Forni Manufacturing Company, which has purchased 22,500 square feet between Sixty-first and Sixty-second streets, west of Doyle street. Here it will manufacture reinforced concrete specialties. Among the products of this company are an everlasting water-proof water meter box which is being installed in large quantities by the Spring Valley Water Company and the East Bay Water Company.

The Electric Smelting and Alloy Company has leased a factory on the southeast corner of East Eleventh street and Eleventh avenue where it will engage in the smelting and refining of non-ferrous metals.

The company manufactures refined metal finished products and does a large and growing export business. It is a large consumer of industrial scraps, including copper, brass, aluminum, lead, zinc and tin. The plant will occupy 15,000 square feet.

The Star Motor Company of California has started the construction of two warehouses and a modern administration building on its five-acre site situated just west of the Durant Motors Company property. The Star plant is to be constructed of brick and concrete and will correspond in general design to that of the Durant Motors Company. It is expected that these buildings will be ready for occupancy in ninety days.

J. C. J.

West Side Division

A very successful domestic science demonstration was recently held in Red Bluff by the Gas Sales Department. The Opera House on Oak street was used for the occasion. Mrs. Nellie Warren of Vallejo had charge of the demonstration and was ably assisted by Miss Betty Braghetta from the Vallejo office and service engineers F. U. Naylor, J. D. Kent and W. Schwartz.

Many types of gas ranges and water heaters were on display and all details in regard to them were thoroughly explained to the visitors. Cake and pie baking, fruit canning and all phases of cooking were demonstrated. The principal feature was a full course dinner, cooked on a single gas range at one time by the service engineers on the last day of the demonstration. Another feature was fruit canning in a gas oven with the aid of a Lorain heat regulator.

That the demonstration was a huge success was evidenced by the fact that the average daily attendance was 150 women, all taking an active interest in what was taking place. Each day, the visitors were given a chance on a full enameled combination Wedgwood gas range. The drawing was held on the last day and Mrs. Beauchemin won the range and was so pleased that she immediately purchased a water heater.

The demonstration was preliminary to an active sales campaign now being conducted, in which thorough canvas will be made of the town and every citizen interviewed. The Company recently expended over \$20,000 in installing larger mains and services, which has resulted in a wonderful improvement in the service to the consumers.

Work was started the first week in July on the \$40,000 addition to the high school building at Orland.

West Side Division is already making plans for taking an active part in the Tehama and Glenn County Fairs, both to be held in September. H. B. H.

San Joaquin Division

Buildings costing \$58,000 are being erected at the San Joaquin County fair grounds as this year's part of the building program. The annual county fair, which will be held in August, will be the biggest affair of its kind ever held in this section. All the buildings will be completed in time for the Fair.

Oakdale, snuggled away in the foothill district and located in the center of a 70,000 acre irrigation system, boasts of its freedom from business depression and to make good its boast refers to the bank statements to prove that better economic and financial conditions exist than at any other time in the history of that city. There has been a gain of approximately 10% in deposits and resources, the combined resources of the two banks in the little city reaching the two million dollar mark. Even the days of inflated values during the war failed to show greater prosperity.

Tracy, like other progressive Valley cities is keenly aware of the value of good streets and roads, and again startles other municipalities within its immediate vicinity by awarding a \$100,000 street paving contract. J. E. Johnson of Stockton was the successful bidder, and when the contracted work is completed Tracy can justly brag of its paved streets.

River traffic on the San Joaquin and Sacramento Rivers, the most important inland waterway system of the Far West, was the subject of discussion at a recent meeting of the Foreign Trade Club of San Francisco. Slides showing local shipping scenes were prepared for the meeting by the Stockton Chamber of Commerce. Aside from its commercial importance as a means of handling a large part of the agricultural output of the two great Valleys, the rivers are a paradise for pleasure seekers.

The first shipment of Tuscan cling peaches from Stanislaus County goes to the credit of the City of Ceres, located five miles south of Modesto, and while the shipment was not large, consisting of only 800 cases, the price paid per ton really

makes the shipment of some consequence. Last season the farmers received \$35 per ton for this fruit, as compared with \$60 which is paid this year. The magnitude of this crop can be realized when one shipping firm alone holds contracts for 3,000 tons of peaches at that price.

Stockton will again claim the College of the Pacific as its own. After several months of conscientious work, the local campaign for \$600,000 was finally brought to a successful close. Too much praise cannot be given the many workers who put aside their own affairs for five weeks in order that this educational institution might be brought to Stockton.

The accomplishment will establish Stockton as the educational center of interior California, and it is hoped that its growth will be such as to permit it taking its place as one of the leading educational institutions of the entire West.

The mining industry in Tuolumne County, as had been confidently anticipated, is gradually recovering from the effects of the depression period, and the greatest amount of optimism prevails concerning the future outlook. At Shawmut the Belmont-Shawmut Mine is operating its eighty stamp mill continuously. Development of the Gold Ridge and Tarantula Mines is to be resumed, as it will also be on the Chilano group near Tuttletown. The Golden Gate Mine near Sonora and the Santa Ysabel Mine near Jamestown are also being re-opened.

The heads of the mining industry have long realized the necessity of electric power, and "Pacific Service" can justly claim the honor of helping keep the mining industry in its present favorable condition.

Stockton building permits are exceeding all previous records this year. During the month of April they showed the largest percentage of increase over the corresponding month of last year of any city in the Twelfth Federal Reserve District.

Cantaloupes, watermelons, apricots, peaches, grapes, figs, and sweet potatoes

have put Turlock on the map, but now comes a new industry; a modern, original, and unique plant whereby alcohol will be manufactured from the now unmarketable part of the sweet potato, melon and fruit crops.

The present plans provide for a distillery with a capacity of 3,000 gallons of alcohol per day during the green fruit season. The process involved, is not new, but by-products consisting of cattle feed and fertilizer, made of the spent mash from the fermenting vats is a new departure. The Hunt-Jewett-Bontz Company of Turlock is pioneering the new industry.

The hospitable invitation extended by the City of Newman attracted some 15,000 visitors who participated in the entertainment offered by that city during its recent Fourth of July celebration. With a military salute, concerts, parades, speeches and sports, the west-siders entertained their guests most successfully. The citizens of Newman are to be congratulated upon their efforts at making this celebration one that will be long remembered in the annals of Stanislaus County.

The Pacific Asbestos Corporation, which owns an asbestos mountain near Copperopolis has recently gone into the control of Fresno interests, headed by Mayor Truman Hart of that city. The new owners intend mining asbestos at once.

Many buildings to house the hundreds of men who will be required to develop the property have been completed and it is proposed to erect the mill at once. It is claimed that here lies the greatest deposit of asbestos in the world.

S. J. D.

San Francisco Division

GAS GENERATION DEPARTMENT

The contract is let and steam shovels are excavating for the foundation of the new 10,000,000 cubic foot Army street storage holder. The 36-inch cast iron pipe for the inlet and outlet connections

has arrived and the steel plates for the bottom of the tank have been shipped from the east coast.

The tar has been removed from the No. 1 relief holder at the Potrero and the 20-inch connections are nearly all removed, ready for the new 30-inch and 36-inch connections. Contractor will soon be at work tearing out the old lifts and crown.

The Metropolitan plant is to have two new 40-foot steel scrubbers to replace two old ones which are being removed.

J. M. D.

TRANSPORTATION DEPARTMENT

The following automotive equipment has been purchased during the past month and is now in operation: one Dodge express for the electric distribution department and one $\frac{3}{4}$ Republic truck for the gas distribution department.

Ending June 30th there were 140 units belonging to San Francisco Division, 11 units to the Head Office and 5 to the San Francisco Supply District, or a total of 156 motor vehicles operating out of the San Francisco garage.

During the month they consumed 11,069 gallons of gasoline and 362 gallons of oil, or an average consumption per car per month of 71 gallons of gasoline and $2\frac{1}{3}$ gallons of oil.

E. C. W.

NEW BUSINESS DEPARTMENT

As a rule the planing mill offers very little opportunity for central station power because of the fact that it has a large by-product of sawdust and shavings to get rid of. By installing its own plant, not only is this by-product utilized for generating power, but also haulage charges are avoided.

W. E. Fitzpatrick, power salesman, secured an installation of 75 horsepower at the planing mill of Collins & Veyhe, 455 Brannan street, that marks the first introduction of central station power in this popular mill. It is at present utilizing its own plant and this is additional

power made necessary by increased planing mill business being handled by the concern.

Salesman Augustine did some effective work during the month of July, closing for "Pacific Service" the business of Norman F. Hall, 500 Howard street, new building, 150 h.p. and 130 k.w. lights. Also W. P. Fuller Company, wholesale paints, 301 Mission street, 110 h.p., also their new garage at 125 Beale street, 25 h.p. and 4 k.w. lights. This firm is the largest of its kind on the Pacific Coast and we are indeed glad of the opportunity of serving them.

Among the larger sales of the month is the closing of a contract with A. F. Rousseau, covering supply of all electric light, power and steam to five four-story buildings, consisting of three stores and offices in each building, a market that promises not to have an equal on the Pacific Coast, as well as service to supply a five-hundred room hotel with a theatre on the ground floor. Most of these buildings are now under construction on the south side of Market between Seventh and Eighth streets. The city of San Francisco needs a few more progressive firms like Rousseau and Rousseau.

O. C. Lewis, salesman in the Mission District, closed two installations well worthy of note, namely:

1346 Folsom street, Italia Motor Truck Company, one of the largest local truck manufacturers in the city, 32½ h.p. and 1.4 k.w. lights. Also northeast corner Park and Mission streets, Pacific Auto

Stage Co., signed up for 30 h.p. This concern is branching out rapidly and already is extending its routes to many new points along the Pacific Coast.

The contract for the White Motor Company was awarded to us for their new sales and service building being erected in Oakland, Fifth avenue and East Eleventh street.

Mr. S. Moore closed one important contract, namely: Mr. Lowden, 7 Zeno Place, 7½ h.p., shutting down steam plant.

Report from the industrial gas and house heating department indicates that people are now commencing to think of heating for the winter season, which will be with us in a few months time. During the month of July three important contracts were closed, among them the sale of a 36-C Bryant hot water boiler to C. N. Weaver, St. Francis Wood. Mr. Weaver is president of the local Studebaker distributing agency.

Mr. Andrew Griffin, 3020 Pacific avenue, demonstrates the satisfaction of our Bryant boiler users by placing an order with us for a 54-C boiler to replace the 18-C Bryant which he has used for the past two years.

The installation of fourteen Rector radiators for Meese Godfried indicates the popularity of this method of heating.

F. T.

IN MEMORIAM

ALBERT R. WHITEFIELD

"Pacific Service" deeply mourns the death of one of its old and faithful employees whose name stands upon our company's roll of honor. Albert R. Whitefield, who was placed upon the pension roll June 1, 1922, died July 1st, one month later.

He was born March 4, 1862, and entered the service of the Edison Light and Power Company August, 1891. At the time of being pensioned he was employed in the electrical department, San Francisco Division.

PACIFIC GAS AND ELECTRIC COMPANY

A California Corporation

Managed by Californians

Operated by Californians

"PACIFIC SERVICE" REPRESENTS:

8,213 employed in all departments.

\$183,000,000 capital invested in gas, electricity, railroads and water plants.

54,000 square miles of territory in which it operates—an area greater than that of England and Wales.

18,204 stockholders, December 31, 1921.

36 counties of the State in which it transacts business.

599,113 consumers served with gas, electricity, water and steam as of December 31, 1921.

1,800,000 people served in 36 counties, which is over 50% of the State population.

233 cities and towns in which it supplies service directly and through other companies.

\$13,205,438 annual wages paid employees in 1921.

\$2,630,890 taxes, State of California, for 1921.

\$634,445 taxes, Federal Government, for 1921.

308,244 horsepower developed in 28 electric water-power plants.

173,592 horsepower developed in 4 electric steam plants.

481,836 total horsepower developed in 32 plants.

1,021,820,689 K. W. hrs. sold in 1921. This is equivalent to the effort of 3,400,000 men.

11,483,551,100 cubic feet of gas sold in 1921.

19 gas plants.

47,100 miles of wire used in distributing electricity, which could be strung around the world over $1\frac{1}{2}$ times.

3,168 miles of mains used in distributing gas, approximately the distance between San Francisco and New York.

1,100 miles of mains and ditches used in distributing water.

1,300 miles of track of street railways supplied with electric power.

61,080,000,000 gallons of water stored in 98 lakes and reservoirs. This amount of water would supply the city of San Francisco at the present rate of consumption for approximately 5 years.

93,501 acres of land owned in California—over three times the area of San Francisco.

233 parcels of property owned in cities and towns.

3,713,717 barrels of California oil used in 1921.

149,228 horsepower in agricultural motors depending on "Pacific Service."

455,380 horsepower in mining, electric railways, manufacturing and other motors depending on "Pacific Service."

52,500 street lamps, gas and electric, lighted by "Pacific Service."

5,234,607 incandescent lamps nightly lighted.

1,044,217 horsepower connected to system.

PACIFIC GAS AND ELECTRIC COMPANY

Head Office: 445 Sutter Street

San Francisco

Branches in all principal cities and towns of thirty-six counties of North Central California.

Pacific Gas and Electric Company Furnishes "PACIFIC SERVICE"

TO OVER 613,000 CONSUMERS OF

GAS. ELECTRICITY. WATER. STREET RAILWAY

1,715,959 Total Population Served in Thirty-six of California's Counties

CITIES AND TOWNS SERVED BY COMPANY

	DIRECTLY		INDIRECTLY		TOTAL	
	No.	POPULATION	No.	POPULATION	No.	POPULATION
Electricity	170	1,117,541	61	156,411	231	1,273,952
Gas	58	1,128,216	2	8,600	60	1,136,816
Water (Domestic)	18	61,719	8	15,488	26	77,207
Railway	1	65,908			1	65,908

Place	Population	Place	Population	Place	Population	Place	Population
Alameda.....	28,806	El Verano.....	400	Meridian.....	200	San Leandro...	5,703
Albany.....	2,462	Emeryville.....	2,390	Millbrae.....	300	San Lorenzo...	500
Alvarado.....	1,000	Escalon.....	600	Mills.....	400	San Martin....	250
Alviso.....	517	Esparto.....	200	Mill Valley....	2,554	San Mateo.....	5,979
Amador City..	377	Fairfax.....	250	Milpitas.....	300	San Pablo.....	500
Anderson.....	750	Fairfield.....	1,008	Mission San		San Quentin...	3,000
Angel Island..	500	Fair Oaks.....	300	Jose.....	500	San Rafael....	5,512
Antioch.....	1,936	Fall River Mills	300	Modesto.....	9,241	Santa Clara...	5,220
Aptos.....	300	Farmington....	300	Mokelumne Hill	900	Santa Cruz....	10,917
Arbuckle.....	900	Felton.....	300	Monterey.....	5,479	Santa Rosa....	8,758
Atherton.....	500	Folsom.....	2,000	Morgan Hill...	646	Saratoga.....	500
Auburn.....	2,289	Forestville....	250	Mountain View	1,888	Sausalito.....	2,700
Barber.....	500	Fresno.....	45,086	Mt. Eden.....	200	Sebastopol....	1,493
Belmont.....	375	Gilroy.....	2,862	Napa.....	6,757	Shasta.....	200
Belvedere....	616	Glen Ellen....	1,000	Nevada City....	1,782	Shelville.....	200
Benicia.....	2,693	Gonzales.....	500	Newark.....	500	Sheridan.....	250
Ben Lomond...	400	Grass Valley...	4,006	Newcastle.....	750	Smartsville....	300
Berkeley.....	56,036	Hidley.....	1,636	Newman.....	1,251	Soledad.....	400
Biggs.....	683	Grimes.....	500	Niles.....	1,000	Soquel.....	400
Bolinas.....	200	Groveland....	500	Novato.....	400	Sonoma.....	801
Brentwood....	400	Guerneville...	800	Oakdale.....	1,745	Sonora.....	1,684
Broderick....	700	Hamilton City.	250	Oakland.....	216,261	South San	
Burlingame...	4,107	Hammoncton...	348	Oakley.....	200	Francisco.....	4,411
Byron.....	350	Hawthorne....	3,487	Occidental....	600	Standard.....	500
Campbell.....	600	Hercules.....	373	Orland.....	1,582	Stanford Uni-	
Capitola.....	300	Hillsborough..	931	Oroville.....	3,340	versity.....	2,700
Carmel.....	638	Hollister.....	2,781	Pacheco.....	300	Stockton.....	40,296
Cement.....	1,000	Honcut.....	500	Pacific Grove..	2,974	Suisun.....	769
Centerville...	1,000	Hughson.....	250	Palo Alto.....	5,900	Sunol.....	350
Ceres.....	637	Ione.....	1,000	Paradise.....	500	Sunnyvale....	1,675
Chico.....	9,339	Irrington.....	1,000	Patterson.....	694	Sutter City....	250
Colfax.....	573	Jackson.....	1,601	Penn Grove....	200	Sutter Creek...	920
College City...	250	Jamestown....	750	Penryn.....	250	Tehama City...	196
Collinsville...	200	Kennett.....	464	Perkins.....	300	Tiburon.....	400
Colma.....	1,500	Kentfield....	500	Petaluma.....	6,226	Tracy.....	2,450
Columbia.....	200	Kentwood....	300	Piedmont.....	4,282	Tres Pinos....	300
Colusa.....	1,846	Keswick.....	200	Pike City.....	200	Tuolumne....	1,500
Concord.....	912	King City.....	1,048	Pinole.....	967	Turlock.....	3,394
Cordelia.....	300	Knights Ferry.	200	Pittsburg.....	4,715	Vacaville....	1,254
Corning.....	1,449	Knights Land-		Pleasanton....	991	Vallejo.....	21,107
Corte Madera..	607	ing.....	400	Port Costa....	900	Vina.....	200
Cotati.....	200	La Grange....	200	Princeton....	300	Wincburg....	200
Cottonwood...	500	Larkspur.....	612	Red Bluff....	3,104	Walnut Creek..	538
Coyote.....	200	Lathrop.....	600	Redding.....	2,962	Warm Springs.	200
Crockett.....	1,500	Lewiston.....	200	Redwood City.	4,020	Waterford....	250
Crow's Landing	300	Lincoln.....	1,325	Richmond.....	16,843	Watsonville...	5,013
Daly City.....	3,779	Live Oak.....	300	Rio Vista.....	1,104	Wheatland....	435
Danville.....	400	Livermore....	1,916	Ripon.....	500	Williams.....	650
Davenport....	300	Lomita Park..	600	Riverbank....	200	Willows.....	2,190
Davis.....	939	Loomis.....	500	Rocklin.....	643	Winters.....	903
Decoto.....	300	Los Altos.....	500	Rodeo.....	300	Woodland....	4,147
Del Monte....	300	Los Gatos....	2,317	Roseville....	4,477	Woodside....	300
Denair.....	200	Los Molinos...	200	Ross.....	727	Yolo.....	350
Dixon.....	926	Madison.....	300	Sacramento...	65,908	Yuba City....	1,708
Drytown.....	200	Manteca.....	1,286	Salinas.....	4,308		
Duncan's Mills	200	Mare Island...	600	San Andreas...	1,183	Total Cities	
Durham.....	250	Martinez.....	3,858	San Anselmo...	2,475	and Towns...	1,347,844
Dutch Flat....	750	Marysville....	5,461	San Bruno....	1,562	Add Suburban	
Eldridge.....	800	Maxwell.....	500	San Francisco.	506,676	Population..	368,115
El Cerrito....	1,505	Mayfield.....	1,127	San Jose.....	39,642	Total Popula-	
Elmira.....	350	Menlo Park...	900	San Juan.....	350	tion Served..	1,715,959

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 —Gas only.
 —Gas and Electricity.

—Gas, Electricity and Water.
 —Gas, Elect. and St. Railways.
 —Electricity and Water.

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 —Gas supplied through other companies.
 —Water supplied through other companies.

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The consumption for this class of service amounts to over 100,000 Kw. Hrs. annually.

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Operates 4 Steam Electric Plants.

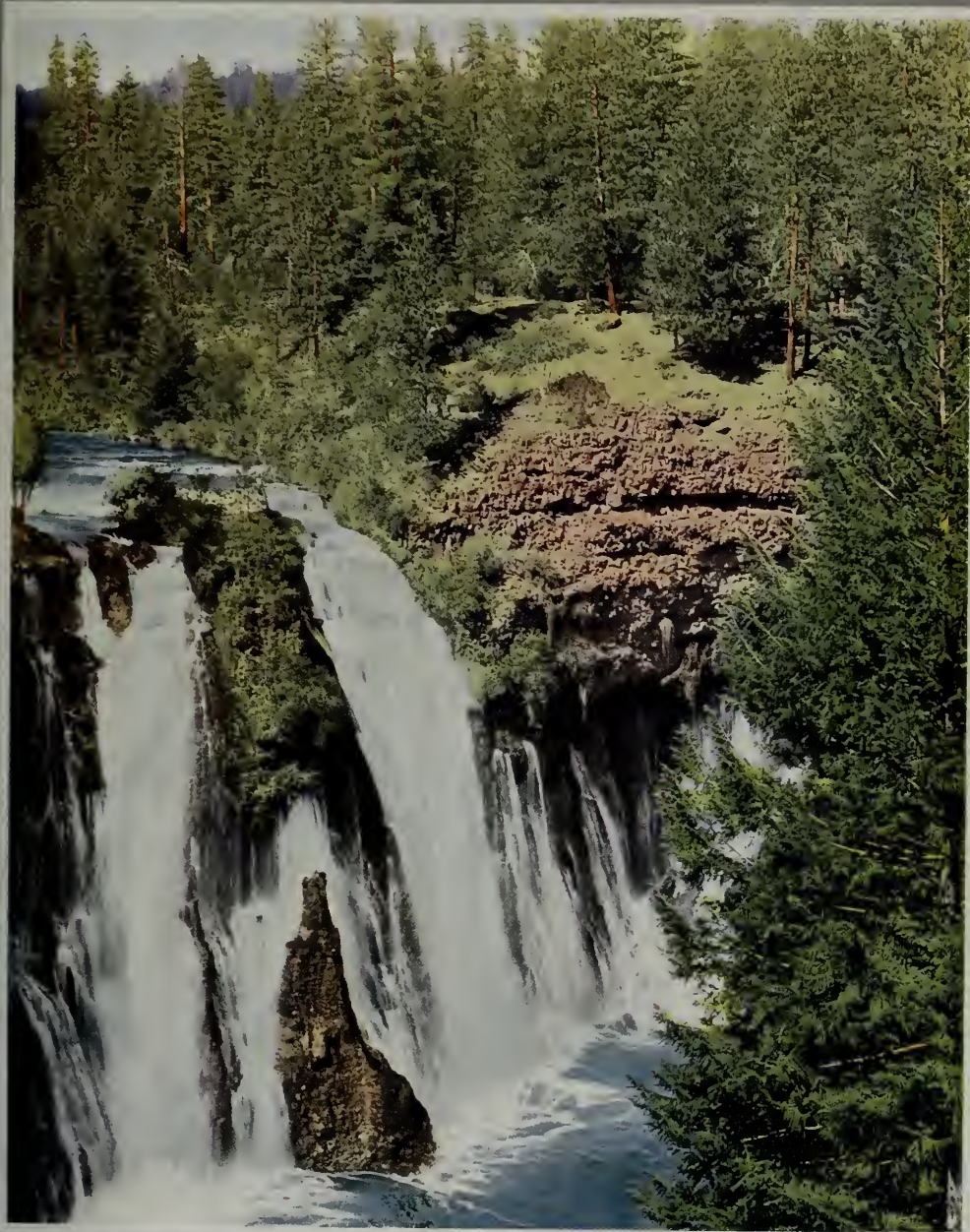
Operates 19 Gas Plants.



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PACIFIC SERVICE MAGAZINE

PUBLISHED MONTHLY BY THE PACIFIC GAS AND ELECTRIC CO. SAN FRANCISCO



BURNEY FALLS, A SCENIC FEATURE OF THE PIT RIVER REGION

Vol
14

SEPTEMBER 1922

No
4

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Pacific Service Magazine

Volume XIV



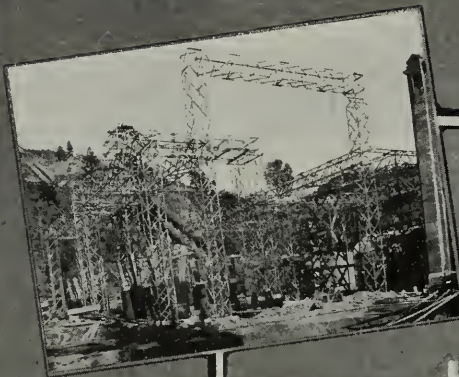
Number 4

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TERMINALS AND DISTRIBUTING CENTERS OF PIT RIVER TRANSMISSION

Upper left: The high tension bus structure at Pit One power house. *Upper right:* Yaca substation, near Vacaville. *Center:* Claremont substation, situated on the border of Lake Temescal in the Berkeley hills. *Lower left:* Newark substation, at the lower end of San Francisco Bay. *Lower right:* Martin station, at the county line of San Francisco.

Building the World's Highest Voltage Transmission Line

By E. H. STEELE, Engineer of Line Construction

The 220,000 volt line of our company's Pit river development makes its beginning at Pit river power house No. 1, in north-eastern Shasta County and ends at Vaca substation in Solano County, near Vacaville.

The line for the first sixty miles traverses a very mountainous section. Starting at an elevation of approximately 3,000 feet, it crosses beautiful Burney valley, which is very heavily timbered. On leaving the valley, the line begins to climb up the mountain slopes, until it reaches an elevation of approximately 4,900 feet, and continues across the ridge at elevations above four thousand feet for a distance of approximately ten miles. On the westerly slope of the mountain the line breaks down into lower elevations very rapidly. However it was in this foothill country that the roughest and most difficult transmission construction was encountered. From here the line takes a southwesterly direction, until it reaches a point near the town of Cotton-



Breaking trail into the mountains, spring of 1922.

wood, where it turns directly south, passing about two miles to the west of Red Bluff, five miles west of the towns of Orland, Corning, Willows and Arbuckle, eight miles west of Woodland, three miles east of Winters, and about four miles east of Vacaville. At Vaca substation the line voltage is reduced from 220,000 to 110,000 volts. Vaca station is laid out with a view of serving as a 110,000 volt distribution center, as all lines emanating from the station will be at that voltage.

The line continues at 110,000 volts, passing through the beautiful orchard country of Vaca valley; thence over some of the very steep Coast Range hills between Vacaville and Cordelia. Cordelia substation will be connected to one circuit of this line, but will not serve as a switching point. The line then crosses a small arm of the Suisun swamps and again enters the Coast Range hills lying between Vallejo and Benicia, and continues on to North Tower substation. At this point the line spans Carquinez strait in order to reach the Contra Costa county shore at South Tower substation. This span, which is over 6,400 feet long, has been in



The pole line through Burney Valley.



Construction equipment entering the mountain section in April, 1922.

continuous operation for the last twenty-two years at 60,000 volts. The structures for the supporting span are being re-insulated in order to take care of the higher voltage.

South Tower is an important distribution and switching point. Here portions of the power transmitted from the north will be "stepped down" to 60,000 volts, and lines at this voltage will radiate out to serve the various communities nearby. From South Tower the line crosses the rolling hills of the Berkeley Range to just south of the tunnel on what is known as the "Tunnel Road," and terminates at Claremont substation, located on the shores of Lake Temescal, just above Claremont. This station is another important switching point, the lines for switching being so arranged that they may be sectionalized either north or south. Claremont is also an important transforming station, for at this point the voltage is reduced to 11,000 to serve the cities of Berkeley and Oakland.

To continue the course of the transmission line, we must return across the Berkeley hills to San Pablo creek and continue south to the intersection of our new Oakland-Newark transmission line, which skirts along the San Francisco Bay shore from Oak'and to a point

about three miles south of the town of Newark where is located Newark substation, important distributing center for the communities of Alameda, Santa Clara, San Mateo and San Francisco counties.

At this point the new line just described makes junction with the 110,000 volt Wise transmission line, completed a few years ago. At Newark substation some

of the power is "stepped down" to a voltage used for distribution. A portion of it at 60,000 volts, serves the eastern portion of the city of Oakland, other lines extend west and north to San Francisco, and still others south to San Jose. Other lines extend from this station at 11,000 volts to serve the fruit and agricultural section surrounding Hayward, San Leandro, Niles and other communities in the valley. The line, however, does not end here, but continues west across the southern arm of San Francisco Bay, thence north along the western shore of the bay, with its final terminus at Martin Station just outside the city limits of San Francisco, an important transformer station and distribution point for service to the city.

The last link of this piece of transmission, that section from Newark to San Francisco, is in great contrast to that



Typical steel towers before the hanging of insulators and wire.

portion of the line which marks its beginning, located in the mountainous, snow-clad range of the Cascades and ending in the low marshy swamps of San Francisco Bay. The towers for this last stretch of fifty miles are all located on pile foundations, with many navigable streams to cross, requiring towers of special design. In some places, in order to avoid spans of too great a length, it has been necessary to place foundations in as much as seventeen feet of water below low tide line.

The great varieties in the characteristics of the country over this route give the construction man a diversity of conditions to meet.

The line, as a whole, from Pit power house No. 1 to Martin station, is 325 miles in length and is divided, with respect to types of construction, into three distinct sections; first, what is known, and will be described as the mountain section, sixty miles in length, extending from Pit power house No. 1, southwesterly across Shasta county to a point near Cottonwood, about sixteen miles south of Redding; second, the valley section, which is 142 miles long and extends from the



A typical double circuit transposition structure.

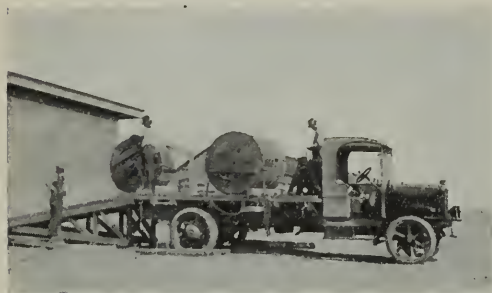
point near Cottonwood to Vaca substation; third, the bay section, 123 miles in length, extending south and west from Vaca to Martin station.

Surveys for this line were started in the early spring of 1920, and active construction commenced on the mountain section in the late summer of the same year. Ninety per cent of the mountain section was under heavy timber, and the first work to be done was to clear the right-of-way of all underbrush and standing timber for a width of 120 to 175 feet. The number of acres to be cleared amounted to 1,150 and included the cutting of virgin timber, sugar and yellow pine and red fir. Some trees measured as large as five to six feet in diameter. The stumpage thus cut amounted to over twenty million feet.

In the year 1920 labor was not only expensive but difficult to secure at any price, and it was necessary that the first link of the transmission line be ready for operation by midsummer of 1921, with four to five months of the year closed to construction operations. Under these conditions it was necessary to confine the clearing operations



The line crosses the broad Sacramento Valley.



The reels of copper wire are transported by truck to the line.

for the first season to only a portion of the total width of the right-of-way.

The mountain section consists of two circuits, each circuit carried in a horizontal plane on separate supports. One of these lines of support is built of Washington cedar poles, sixty feet in length, each support requiring two poles, which are built in the shape of the letter "H," having a spread of sixteen feet, with wood cross-arms thirty-two feet in length. The standard structure spacing for this line is five hundred feet, except where the topography of the country prevented.

The structures supporting the second circuit in the mountain section are entirely of steel tower construction on reinforced concrete foundations. These towers are 55 feet in height. The standard tower used in tangent line and standard spacing is known as our "S. A." and weighs 5,100 pounds. The angle tower of the same general type, designed for angle points, dead ends and extremely long spans is known as our "S. C." and weighs 7,270 pounds. The arm length on both classes of towers is 38 feet, permitting a wire spacing in the horizontal plane of 19 feet. Standard tower spacing in the high mountain section is 500 feet and in the lower mountain section 700 feet. Work on this section of line is under full swing at the present time, but will not be completed and

ready for service until the early summer of 1923.

Work was started on the valley section of the line early in the spring of 1921. This section is constructed with two circuits in a vertical plane, both carried on a single support. These supports consist of steel towers placed on reinforced concrete foundations. The towers measure ninety-eight feet in height, with an arm spacing of fifteen feet and an arm length of twenty-four feet. The standard tower, known as our type "M," weighs 8,440 pounds.

Anchor towers, known as our type "O," are used at intervals of every six miles, angles and other critical points. This tower weighs 12,950 pounds.

Transposition towers are used at intervals of approximately every six miles. These are built of two modified standard "M" towers, each offset from the center line of towers seventeen and a half feet and suitably tied together with two trusses. This structure permits the interchange of wire positions without the necessity of creating dead ends. The structure weighs over 17,000 pounds. The interchange of wire positions is called a transposition point, each circuit being transposed with respect to its own phases. The standard spacing for towers in the valley section is eight hundred feet.

In the two sections referred to above there are, in addition to the standard two



Pulling wire to tension on the last tower of the line at Vaea substation.

circuit and single circuit towers, fifteen special towers, ranging in height from 131 to 198 feet. These are designed to take care of long spans where either river or creek crossings have to be made, requiring special clearance. They are of the double circuit type.

Standard side hill extensions have been designed for all classes of towers, ranging in length from $2\frac{1}{2}$ to $12\frac{1}{2}$ feet, which will take care of all side hill conditions that may be encountered.

Work was started on the bay section in the fall of 1921. This line is designed to operate at 110,000 volts. The tower design is quite different from that in the mountain and valley sections, the line being designed for operation at lower voltage, permitting of several modifications of the towers. However, the towers are of the double circuit type, carrying their circuits in a vertical plane. The height of the standard tower is 82 feet, with an arm spacing of 10 feet and an arm length of 17 feet, standard tower spacing 800 feet. In perfectly level country this permits at all times the maintenance of a minimum wire clearance to the ground of thirty feet.

The towers are subdivided into four distinct classes in this section. First, our "A H" tower, weighing 5,080 pounds, is designed to be used in all tangent lines with standard tower spacing. Our "B H" tower, weighing 6,200 pounds, is designed for use in angles up to fifteen degrees and



Superintendent Koester beside one of the reel carts.

for moderately long spans. Our "C H" tower, weighing 7,590 pounds, is for use on angles of over 15 degrees and under forty-five and for dead ends. There are also special towers ranging from 131 to 200 feet in height and weighing from ten to twenty-five tons each. The special towers are for use in crossing navigable streams, where the government requires a clearance above the high water mark for protection of navigation. There are twenty of this class.

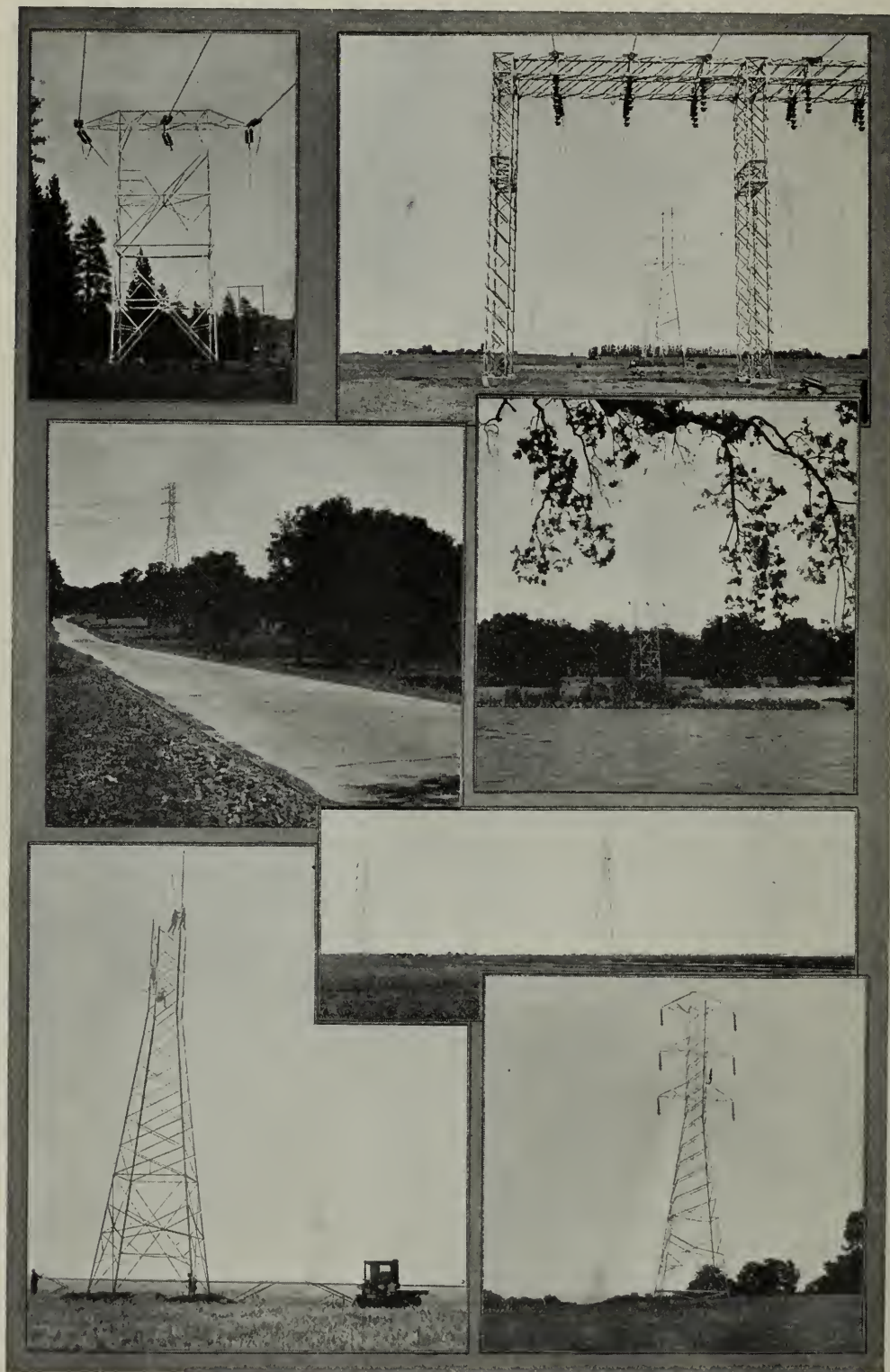
All of the towers used in the bay section are designed to carry two circuits of 250,000 circular mill copper.

Insulators used in all sections of the line are of the suspension type. In the bay section, designed for 110,000 volts, eight standard 10-inch suspension discs are used, while in the valley and mountain sections, designed for 220,000 volts, fourteen units are used which are divided up as follows: Beginning at the tower support the first nine units are the standard ten-inch disc, then two $13\frac{1}{2}$ and 11-inch special units are alternated and the fourteenth unit is a standard 10-inch disc, encased in a copper disc, known as a corona shield. Extra strength units are used on all "O" towers, angles and dead end points.

A standard suspension insulator string measures 77 inches in length and weighs 180 pounds; dead end strings are 98 inches in length and weigh 220 pounds. The same insulator arrangement is used in both the valley and mountain sections.



Construction equipment on the move.



HERE AND THERE ALONG THE LINE.

Reading from left to right, from the top down, these views show: (1) Snow tower in the mountains of Shasta County. (2) Terminus of the line at Vaca substation. (3) Along the state highway not far from Red Bluff. (4) Crossing the Sacramento River near Cottonwood. (5) Erecting double circuit tower in the Yolo County grain fields. (6) Crossing of the Drum and Pit tower lines in the vicinity of Woodland. (7) Section of the line through the rolling hills near Cottonwood.

The cable, which is the conducting medium, consists, for the first twenty-five miles of the mountain section, of 518,000 circular mill steel-core aluminum, having an equivalent carrying capacity of 350,000 circular mill copper. The determining factor in selecting this conductor was to get a maximum diameter for a given carrying capacity, as it is all at an elevation greater than 3,000 feet above sea level. The corona effect was of primary importance. In making up the joints on this conductor the two ends of the steel core strand are placed in a seamless steel sleeve and twisted together. This sleeve supports all of the tensile strength required to make the conductor of uniform strength. Next, a cast aluminum sleeve is placed over this joint, which is then put

in a hydraulic press, the pressure thus exerted being about 100 tons, causing the cast sleeve and aluminum strand to flow together, insuring a perfect electrical joint.

The remainder of the line, consisting of two circuits each 177 miles long, is all of 500,000 circular mill rope lay copper. The connectors for this cable consist of three pieces, two cast copper sleeves, one end of which is solid. The hollow end of the casting is placed on the copper cable at the factory by the use of a powerful mechanical press, the solid ends being threaded, one with a right, the other with a left hand thread. The third piece is a cast copper coupling, carrying a right and left thread. The copper ends are thus brought together in the field and connected up with wrenches, just as one would screw pipe together.

In stringing the wire much the same

procedure is followed as with lighter conductors. However, much heavier equipment has to be used as this wire weighs approximately one and one half pounds to the foot or 25,000 pounds per circuit mile.

The reels of cable are first loaded on heavy reel carts, paying the cable on the ground by carrying the carts ahead on line. The cable is then raised and placed in special snatch blocks at the tower support. These blocks are placed so that they support the cable at a point about four inches higher than the final

position on the lower end of the insulator string. This simplifies the procedure of transferring. While the placing of the cable in snatch blocks is going on, the men assigned to attend the blocks during a pull are seeing to the mak-



Gravel loader at work.

ing of a safe anchorage for their block and tackle. This is done by making fast to the reinforced concrete piers supporting the towers. As there are over 36,000 pounds exerted on the anchorage at the time of making a pull, care must be used that the loads are equally divided between the four foundations. This is done by the use of turnbuckles.

There is a space of from three to four miles of circuit pulled at one time, so that the passing of signals becomes an important factor in keeping the line crew working efficiently when scattered over this great distance. After the line has been pulled to proper sag, temporary dead ends are made at this point in order to hold the cable in place until the blocks can be moved ahead preparatory to the next pull.

The pulling crew is followed by men

who are assigned to the duty of transferring the cable from the temporary snatch block supports to the insulator supports.

In the valley country a line crew will complete the stringing of from one to one and a half miles of line per day, two circuits, carrying sixty to sixty-five men in the crew.

Over six hundred and fifty men have been engaged in the construction of this line and no small amount of thought had to be given to the housing, feeding and moving of the men from place to place, with a view to giving them the best that could be had for the character of camp that had to be maintained, namely, one that was highly portable.

The transportation question was another big problem where thousands of tons of freight had to be hauled, under constantly changing conditions, from good roads to poor roads and much of the time where there was no road at all. Water even had to be transported for the mixing of concrete and domestic purposes, the distance being at times as great as ten miles.

It will be of interest here to furnish a few figures with reference to quantities of material handled and tonnage moved.

There are 2,400 towers in the line, each foundation requiring 500 gallons of water to mix the concrete. This water weighed 4,000 pounds, or two short tons, per unit, so that the total weight of water required was 4,800 tons. For use on the entire line, in all classes of foundations, there were 60,708 yards of rock and earth to excavate; 20,423 cubic yards of concrete to place; 25,348 yards of rock, sand and gravel, weighing 40,556 tons; 98,814 sacks of cement, weighing 4,941 tons; reinforcing bars, 427 tons; tower steel, 8,000 tons; insulators and line hardware, 635 tons; copper and aluminum cable, 11,000,000 pounds, or 5,516 tons.

To move the rock and gravel took 725 freight cars; cement, 100 cars; reinforcing

iron, 14 cars; tower steel, 218 cars; insulators, 22 cars; wire, 145 cars; making a total of 1,225 carloads of material in all.

These figures do not take into consideration the vast amount of equipment necessary to carry out the work that was constantly being moved. This ran into thousands of tons. After the freight had been received at the railroad station it all had to be handled and moved on trucks from two to twenty miles, an average haul of approximately ten miles.

Private roads and trails constructed, over fifty miles; private gates installed to permit entrance to private property, over one thousand.

The Pit transmission line equals, from the standpoint of financial investment, Pit One Power House, Vaca substation and Claremont substation combined.

In point of cost per mile of line, it is the most expensive, as well as the most substantial ever built. In cost per kilowatt it is the cheapest line yet built, considering its length.

It will have a capacity of 250,000 kilowatts, which in transmission investment will represent about \$36.00 per kilowatt.

All of the lines described in this article will be put in operation early in September of this year, with the exception of the second circuit in the mountain section and that portion of the third section which is located south of Claremont substation. These uncompleted lines will be ready for service early in the year of 1923. The line between Pit No. 1 and Vaca substation will go into operation at 125,000 volts, at first, and as soon as the second line on the mountain section is completed will be raised to 175,000 volts. The line south of Vacaville will operate immediately at its normally designed voltage, namely 110,000 volts. The lines between Pit No. 1 and Vaca will be operated at their designed voltage, 220,000, as soon as all work contemplated under the entire program of this development has been completed.

Engineers Inspect Our Pit River Developments and Approve Them

By WALTER D. SULTAN, Rate Engineer

On Friday, August 25th, the Engineers' Club of San Francisco, seventy-six strong, turned out for the greatest excursion in the club's history. The vote on this was unanimous. In order that the trip might not be too technical, a few of the club's commercial friends were included, as well as one attorney who was taken along as a matter of insurance. There was also a sprinkling of "Pacific Service" men to act as hosts, including Vice-Presidents A. H. Markwart and W. G. Vincent, Jr.

From an engineering standpoint the time for the trip was extremely well chosen, as in a few days water was to be turned into the tunnel and many of the most interesting features of the development would then be inaccessible. In the power house itself one unit was completely assembled and in place, the switchboard almost completed, the second unit in process of assembly, and the transformers and switches all in shape for the most minute study. The company's construc-

tion men were all on the job, ready to explain mechanical features, reasons for the particular design or the theory involved.

After a thorough inspection of the power house the party was shown an excellent example of "Pacific Service" hospitality, a wonderful dinner. In the evening a short talk was given by J. P. Jollyman in the power house, and then questions regarding the installation were shot at Joe from all sides. After all questions were duly answered the party retired to well-earned sleep.

Next morning the visitors were taken by autos to Hat Creek Plant No. 2 and the plant thoroughly inspected. The water wheel was shut off and the water allowed to spill down the wasteway in a wonderful cataract for the special entertainment of the guests. Beautiful Burney Falls were visited enroute and enough pictures were taken of this beautiful scene to have delighted the Kodak manufacturers. The party then proceeded to



Here are "chemists and miners and hydraulic men
And electrical fellows of marvelous ken."

the intake of Pit No. 1 on Fall River, above Fall River Mills. The diversion dam, intake and canal were examined, then most of the party walked through the two miles of tunnel to the surge chamber, and down to the plant via the tramway. After lunch the party proceeded reluctantly back to Bartle and San Francisco.

It was the consensus of opinion that the trip was most efficiently handled, every detail being carefully worked out by members of "Pacific Service" in San Francisco, and by Engineer O. W. Peterson, who was on the job. Each man returned a better engineer, a better Californian and a more appreciative friend of "Pacific Service."

The following resolution, prepared by C. H. Snyder, Secretary of the Engineers' Club of San Francisco, and unanimously adopted by its Board of Directors, is an excellent testimonial of what the engineers think of the project, the company and the company's personnel:

Now WHEREAS it appears that the P. G. & E. Has constructed a plant on the Pit, don't you see, It is going to be a big thing when it's done; 'Twill perhaps be the biggest thing under the sun,

And WHEREAS in designing a plant of this size, Certain questions of moment are sure to arise, As to whether the plans of the work are done right, And if reasonable profits will soon be in sight,

And WHEREAS, be it known, that the Engineers' Club Is fair bursting with talent, both common and dub,

Having chemists and miners and hydraulic men And electrical fellows of marvelous ken,

And WHEREAS the aforesaid, the P. G. & E., Being proud of its works, although anxious to see If its mode of design and construction were good, Took the Engineers' Club to its plant in the wood,

And WHEREAS the arrangements all through the long trip

Were as perfect as though they'd been packed in a grip,

All the eats were surpassing, the lodgings were fine,

And the seats on the flat cars were simply divine.

Be it therefore RESOLVED by the Engineers' Club,

(With its talented members, both common and dub),

That they fully agree with the P. G. & E., That the works they have witnessed were wonderful to see.

Be it further RESOLVED by the Engineers too, That they offer their thanks to the hard-working crew.

Who so ably have handled, with tact and finesse, This delightful excursion with perfect success.

It is also RESOLVED by the men of E. C., (Which includes on its list certain men of G. E.), That they wish to extend to the P. G. & E., The sincerest of thanks to the greatest degree.

Be it further RESOLVED by aforesaid E. C., That in order that all of the members may see, These RESOLVEDS and WHEREASES be nailed to a tree

And a copy be sent to the P. G. & E.

Following are the names of the engineers and their hosts who made up the excursion party: J. V. Anthony, J. D. Barnhill, B. B. Beckett, T. E. Bibbins, Walter Bivins, A. L. Black, A. S. Blake, E. M. Breed, T. W. Brooks, G. F. Brown, Roy Cowles, H. W. Crozier, C. Derleth, Jr., I. P. Dresser, R. W. DuVal, R. H. Elliott, C. French, J. D. Galloway, A. V. Gillou, D. E. Harris, H. F. Hartzell, E. L. Hirt, B. C. Holst, R. A. Hudson, A. A. Hanks, H. H. Hovie, John Hunt, F. L. Hunter, Jos. Jollyman, Allen Jones, L. R. Jorgensen, P. Keatinge, H. Keesling, G. B. Kirkwood, F. Lawlor, Will L'Hommedieu, W. C. Lynch, A. H. Markwart, R. F. Manges, J. H. Mee, F. M. Morgan, Thos. Morrin, E. R. Murray, H. R. Noack, L. A. Nott, Paul J. Ost, A. J. Pahl, F. C. Piatt, W. H. Popert, Don Ray, J. D. Raymond, C. J. Rhodin, D. M. Riordan, N. S. Ross, S. B. Russell, C. E. Seage, S. B. Shaw, E. O. Shreve, E. F. Sixtus, C. E. Skinner, C. H. Snyder, I. C. Steele, W. Struckmeyer, John Sturgess, Walter D. Sultan, N. R. Sutherland, J. A. Thompson, Jos. S. Thompson, W. R. Van Bokkelen, R. W. Van Norden, W. G. Vincent, Jr., H. H. Wadsworth, W. L. Winter, J. E. Woodbridge and C. L. Wooll.



“Pacific Service” in the Manufacture of Olive Oil

By GEO. L. DONOVAN
Agent, Niles, East Bay Division.

When the padres at Mission San Jose had partly finished the construction of their mission church and buildings, they gave their attention to the planting of orchards, vineyards and gardens. That was just one hundred and twenty-five years ago, and today all that remains of tree, vine and garden are a dozen old, gnarled and most beautiful olive trees. These are the only live things that saw Mission San Jose in her glory, what time her thousands of cattle roamed the plains and all that was civilization, culture and industry was centered about her walls.

The gardens of the padres, with the exception of the olive trees, have been replanted within recent years to lemon, orange, fig and apricot trees, with a sprinkling of pear, peach, apple and other fruits. These comprise about thirteen acres, all that have remained to Mission San Jose of the thousands of acres that were once her domain. It was President Lincoln who signed the decree confirming the property of the Mission and compelling those who had seized it and the Mission church and buildings to return them once and for all to the church. About twenty-five years ago the Archbishop of San Francisco turned over to the Sisters of St. Dominick the thirteen acres of vine and garden, or what was left of them. At that time there was still a nice piece of vineyard, which was then close to one hundred years of age. It

was the famous Mission grape, the bunches of which were fully two feet long and often weighed ten pounds. This vineyard would be in existence today if the grapes were of the table variety, but, being wine grapes, the sisters had the vines taken out and olives set out in their places. Today, the sisters have several hundred olive trees, all in fine growing condition.

From these olive trees, old and young, the Dominican sisters make several hundred gallons of the finest olive oil in the state. They do all the work themselves. They pick, sort, crush and press the olives, and wash, strain and filter the oil. In the early part of the year, usually February, the olives are ripe and ready for the crusher. They are first picked, and are then brought to the crushing room, where the leaves, twigs and refuse are removed. The olives are then poured slowly into the hopper of the crusher.

Here is where “Pacific Service” does the real work. To grind up olives, pits and all, is some task, as the pits are hard as bone. A three-horsepower motor runs



The olive grove in the grounds of the old Mission San Jose. These trees were planted by the padres over a hundred years ago.

the crusher and grinds the olives to a fine pulp. This pulp is then placed in trays two feet square and two inches deep. Each tray is wrapped in burlap; a dozen of these trays are placed one on top of the other and placed in the press. The trays are then squeezed until all of the oil and juice seems to be removed. This product is allowed to settle and when the oil is all at the top it is poured off into large copper vessels. A stream of cold water is turned on which mixes with and washes the oil. It is then poured off ready for filtering. The filtering process is merely running the oil through oil paper and clean cotton. When the oil is poured into the bottles for market it is a most beautiful color.

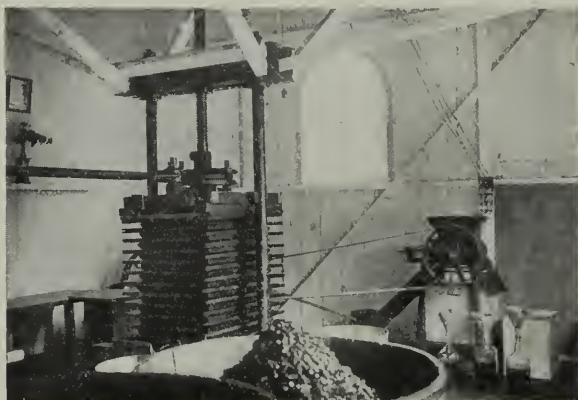
The crushed olives are taken from the press, removed from the trays, stirred up and again placed in the press. These are then pressed a second time. This second pressing gives the best oil and requires very little washing.

There is not-

ing wasted in the product of the olive. The pulp, after the juice is removed, may be allowed to harden, and from it are made buttons, picture frames and many novelties. The juice may be boiled and, when cooled, is a beautiful rose color, used for staining and ornamental work. When at last there is nothing left in the crushed olives, and the pulp is taken from the press in a solid state, the residue may be used for fuel to heat the water to wash and clean the vessels.

The oil is sold by the sisters. It is much sought after by invalids, for physicians recommend it for their patients. The old trees of the padres yield an enormous crop every year and still they are vigorous and healthy. It is not unlikely that one hundred years from

today these trees will be still bearing a good crop. May we venture to predict that "Pacific Service" will be then doing its share in manufacturing and perfecting a one hundred per cent product as it is doing today?



Where the picked olives are made into olive oil.

Gas Men Convene at Santa Barbara

By the time this issue of PACIFIC SERVICE MAGAZINE reaches its readers the twenty-ninth annual convention of the Pacific Coast Gas Association will have become a matter of history.

Santa Barbara was chosen as the scene of the convention this year, with the commodious Hotel Arlington as headquarters. According to Secretary Wm. M. Henderson, the attendance promises to break all previous records. Many new and interesting features will form a part of this year's activities, among them a revival of a gas appliance exhibit. Santa Barbara affords

entertainment, and surf bathing, motoring and golf will balance the business program.

Among the members of our "Pacific Service" family who will attend the convention are Mr. W. E. Creed, Mr. John A. Britton, Mr. F. A. Leach, Jr., Mr. W. S. Yard, Mr. R. E. Fisher, Mr. Henry Bostwick, who is president of the Association, and many others, including department heads and division managers. At the annual banquet, scheduled to be held at the Arlington on Thursday evening, September 21, it is expected that Mr. Creed will strike the key-note of the convention in a message to its members.

Gas-Heating Development in the San Francisco Bay District

By H. L. ECKENROTH

Heating Engineer, San Francisco Division

Probably no other industry on the Pacific Coast has enjoyed the rapid growth that has attended the gas industry, as the increase in the use of this most modern fuel in the past five years, for industrial as well as domestic purposes, has been little short of phenomenal.

While gas as a heating medium is not at all a new application, it would appear that the manufacturer of gas appliances had slept blissfully for many years, ignoring almost entirely the great field that lay before him—the field of gas appliances. There came, however, a great general awakening, partially due to the fact that gas lighting was rapidly giving way to electricity, and our manufacturers began in earnest, what has proved to be a well-rewarded effort to place gas as a fuel in its rightful position through the medium of attractively and practically

designed gas appliances substantially and intelligently constructed to burn gas efficiently.

The beauty, efficiency and general superiority of the present-day gas range, with its thermostatic ovens, time-clocks, etc., over the range of five or six years ago is a fair example of what has taken place over the entire field of gas-appliance manufacture, and it is quite apparent that our manufacturers upon awakening more than outdid themselves in making up for lost time, improving continually on the appearance, finish, decoration and, last but far from least, the efficiency of their product, until what a few years ago was a "messy chunk of iron" has reformed and reconstructed itself to be a rather pleasing thing to look upon.

Armed with these proper and appealing implements, gas companies instituted intensive sales campaigns; the small dealer's help was enlisted to the mutual benefit of himself and the central station, with the result that gas today is rapidly becoming recognized as the truly "ideal fuel."

It is strange but quite true that the general public is slow to grasp or appreciate anything that is new to it—particularly a mechanical device. Regardless of what its virtues may be or what economies and conveniences this device may promise, the public is usually skeptical and wary, and not entirely without cause. The public has been much preyed upon; it has been sold many things that were made to be sold and not to be used; it has been much misinformed and misled; therefore, it has become skeptical and it has become wary.

For many years practically the only gas-heating appliances available consisted of various types of portable heaters, gas grates and a limited number of gas radiators resembling as closely as possible steam and hot-water radiators. No



Typical Bryant boiler installation.

particular attention was paid to burner construction, the burners usually consisting of an ordinary piece of half-inch gas pipe capped on one end, a dozen or more drilled ports or burner holes, an air mixer and stopcock on the other end; or, in the case where a luminous flame was used, lava tips were employed.

The most difficult task of the present-day gas-heating salesman or engineer is to overcome the prejudice aroused by the use of this type of gas heater, with its leaky gas-hose connection, with its poor combustion and no provision for eliminating entirely from the room the by-products of its combustion, more commonly known as "odor and moisture."

With the gas ranges, water heaters and domestic appliances in general firmly established and ably handled by the dealers, "Pacific Service" turned its attention to the larger and newer field of industrial and house heating equipment, and in the spring of 1917 started its first intensive campaign for developing and securing this class of business. How well it succeeded is clearly shown in the following paragraphs.

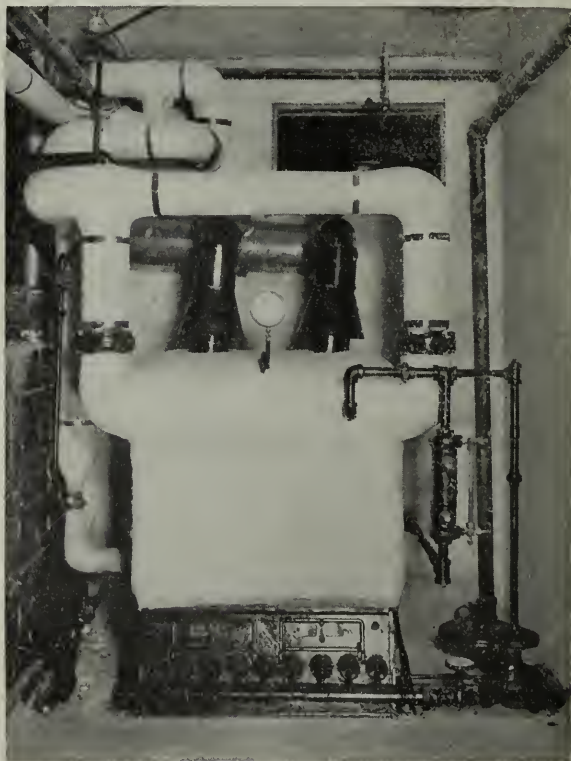
Experience has taught me that one of the most important things attendant to the successful gas-heating engineer is his capability of explaining to a prospective purchaser as clearly and as simply as possible, by way of ordinary comparisons with which the prospective purchaser is thoroughly familiar, the merits of modern gas equipment.

As an example, the average woman, or man, for that matter, does not know whether carbon monoxide is a carbonated water or a cold tablet; they know less about a B. t. u. than most of our attorneys do about the Eighteenth Amendment—don't know a good burner from a shower sprinkler, and have less inclination to learn about these things than the Allies have of paying their debts.

However, if you explain that for truly healthful gas heating you must vent a gas appliance, throw a little of the heat away for the same reason that you peel potatoes, shell peanuts, etc., they

will grasp the full situation immediately. If you explain to them that the gas itself is burned in a tight iron box from which a pipe is run to the chimney, and it is only the heat that is thrown off from the *outside* of this box that comes up into their rooms, they will readily understand why it is impossible for them to get any "odor" or "moisture" from their heating plant.

After carefully selecting the particular types and makes of appliances to be recommended, and compiling all available data, we started out in earnest some five years ago to sell and install gas furnaces as central hot-air heating plants for heating homes, schools, churches, office buildings, factories—in fact, every type of building where heating was required. Automatic features, such as time-clock, thermostatic and push-button controls, were incorporated in the majority of these installations, and as these controls eliminated almost entirely the human factor they sprang into favor so rapidly that at the present time few installations are sold without them.



Bryant automatic gas-fired steam boiler, heating eight-story building of the Heine Piano Co., San Francisco.

Without going into detail on the progress of this campaign, its success is most clearly shown by the fact that there have been sold and installed in the cities of San Francisco, Oakland and the immediate vicinity, in the past five years, approximately 3,400 gas-fired hot-air furnaces, with an approximate consumption of 596,000,000 cubic feet of gas per annum.

About two and one-half years ago, after the usual thorough tests were made, a gas-fired boiler for steam and hot-water heating plants was adopted, with the result that to date approximately 400 of these boilers, with an approximate gas

In addition to the hot-air furnace and the steam boiler, with their automatic controls, thousands of radiant-type fire-place heaters, vented radiators and heaters of all descriptions have been sold, and it is most gratifying for us to look back over these last five years and realize what great success has attended our efforts to place gas as fuel in its rightful position.

Do not be misled, however, to believe that this equipment was from the outset received with open arms amid cheers and applause. It most emphatically was not; for, as I have stated, our public had been "sold" odor and moisture and other



One of the two batteries of Hall special gas furnaces for heating the Golden Gate Park Memorial Museum.

consumption of 70,000,000 cubic feet per annum, have been sold and installed in the territory above mentioned.

The value of these boilers, with their absolute automatic control, was readily appreciated by those operating low-pressure steam or hot-water heating plants, particularly apartment-house operators. They eliminated entirely the cost of attendants, whose services in most cases have proved very inefficient and unsatisfactory. In addition, an adequate fuel supply at all times is assured at a moderate price, which, together with the fact that the boiler room is not required to be made fireproof, is free of all ash, dirt and stored fuel, and the boiler itself is maintained gratuitously by the gas company, has established this appliance firmly in the heating field.

defects for years, and it was no easy matter to start this stuff off to the particular, skeptical consumer who had a "heater that smelled," that "gave off that awful moist heat"; and, again, if he or she had not had one they were sure to know a "friend that had one." Then, there were the architects, heating engineers, consulting engineers, "insulting" engineers and what not. No, it was no easy matter.

Briefly, this is how it was done: two men—only two—were turned loose in San Francisco. They were salesmen and they were gasmen—men who had been schooled in the ways of the gas business for many years—and if they did not know all about the intricacies of the gas and gas-heating business, they knew at least as much about it as did anybody else and a great deal more about it than most people did.

While it is not my intention at this time to define what in my opinion goes to make up the ideal gas-appliance salesman, I will say that I can think of no greater calamity than that of placing the sale and installation of a gas-heating system in the hands of a salesman who is not a gas-heating man. He should be a gas-heating engineer.

To substantiate this statement, I am sure you will find that while a good, satisfactory, well-made installation will be the direct cause of selling another, or two, or three, or more, one poor, improperly made installation will spoil a hundred sales. You will hear its echo for years to come; for, unfair as it may seem, the average human will not go greatly out of his way to advertise something that has been purchased and found satisfactory, but will, on the other hand, shout a failure from the house-tops for ever and ever.

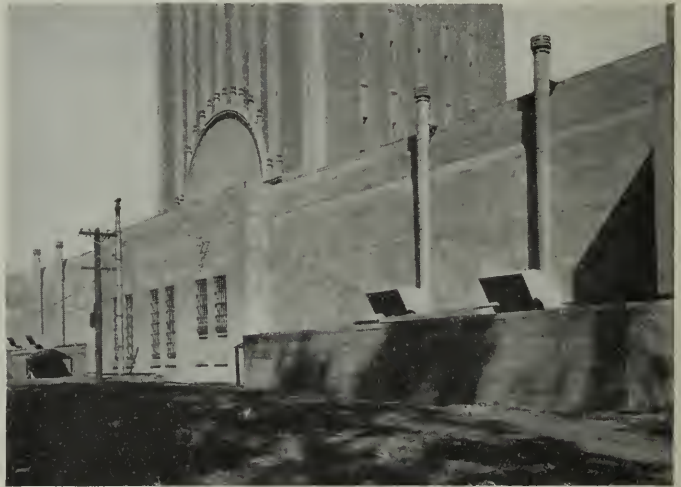
Some mistakes were made—very few, to be sure—but who that does things does not make a mistake occasionally? If we did not do these things ever the cost of lead pencils could be greatly reduced by the elimination of the eraser on the end. Still you will all agree with me that this is a very handy appliance, the eraser, occasionally. These mistakes, however, were in every case speedily rectified and the same mistake was never allowed to occur a second time, for each had taught a lesson.

Fully aware of the importance of their mission, these two men worked ceaselessly, carefully and intelligently, and in a comparatively short space of time the wedge was driven.

First came the small residence with a furnace burning 100 cubic feet of gas per hour, heating three rooms; then the larger residence consuming 200 to 300 cubic feet to heat from seven to eleven rooms; then the church, the office building, the factory, and so forth, until it has become so—through the intelligent selling and installation of the earlier systems and the edu-

cational campaign being constantly pursued by the Pacific Gas and Electric Company, by means of its engineers, its laboratory showroom where all of this equipment is demonstrated from 8:30 a. m. to 5:00 p. m. daily, and the medium of advertising—that this equipment is specified constantly by architects, engineers and builders.

Although the appliances themselves were sold and maintained by "Pacific Service," the actual installations of these heating plants were turned over to outside sheet-metal workers, steam fitters, gas fitters and plumbers, as the company employed none for this particular work. However, the installations were made



The heater houses at the De Young Memorial Museum in Golden Gate Park, showing fresh air inlets and vent pipes.

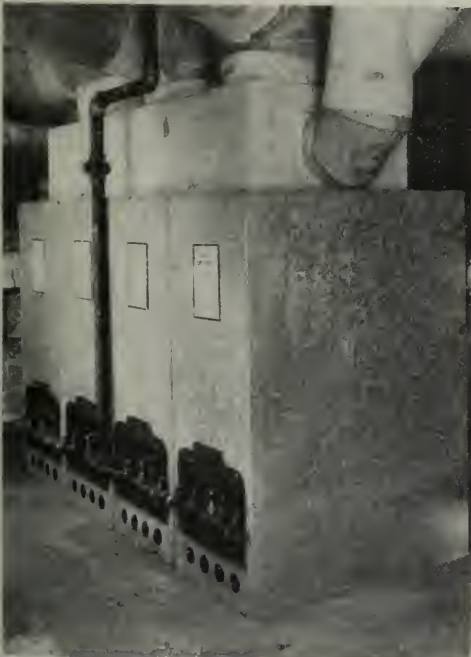
under the supervision of the company's engineers. This greatly encouraged these contractors, as it demonstrated clearly to them that the company did not wish to interfere with their interests in any way as contractors, but, on the other hand, created more work for them. It also convinced them that a fair profit could be realized from the sale of the appliances themselves, and that the company stood ready to assist them in making the actual sale, providing the proper equipment was specified.

The result of this policy has been that the fitters, sheetmetal workers and small dealers are actively engaged in selling and installing gas heating equipment wherever possible.

The two most recent installations

worthy of special mention, being the largest of their respective classes in the West, if not in the entire United States, are the Golden Gate park memorial museum and the Southern Pacific terminal warehouse building, the latter being heated with a standard low-pressure steam system—the steam being supplied by four Bryant automatic gas-fired steam boilers, totaling ninety-eight sections, with a maximum possible consumption of 5,000 cubic feet of gas per hour. These boilers are so situated that they are directly under that section of the building heated by them, thereby eliminating considerable transmission loss due to long pipe runs and making for the highest possible efficiency.

The heating of the Golden Gate Park Memorial Museum presented a much more difficult problem due to the construction and design of the building itself, which was built close to the ground, as well as the fact that cabinets, display cases, statuary, paintings, tapestries and exhibits in general made it almost impossible to find practical radiator locations for a direct steam or hot-water heating system.



Four unit Hall gas furnace, heating office and store building of the Bancroft Whitney Co., San Francisco.

After a careful survey of the situation it was decided that a direct hot-air heating plant with a large number of small registers, well distributed, would be the most practical and efficient manner in which to heat this building, and the following installation was made:

An excavation 4 feet deep was made at the rear of each of the two wings of the building to allow for the erection of two concrete furnace houses approximately 40 feet long and 10 feet wide, in which way the mouths of the blowers exhausted directly below the floor of the museum building.

From this point channels, or concrete-covered ditches, 800 feet in length and graduating from 3 by 3 feet to 10 by 12 inches were cut into the floor of each wing and twenty-four heating registers installed. The heated air is forced through these channels by a blower supplying 15,000 cubic feet of air per minute, and a swing damper makes it possible to draw the cold air from outdoors, return the air from the building, or both, in proportions as desired.

The air is heated by two batteries of twelve Hall gas furnaces, each of which have a total maximum consumption of 6,000 cubic feet of gas per hour.

During the summer months, the blowers, operated without the furnace, will be used as ventilators.

One of the outstanding features of this plant lies in the fact that considerable heat, absorbed by the concrete, is radiated from the floor, thereby accomplishing the most difficult task of keeping the heat "down" where it is most needed; and the floor itself is kept pleasantly warm, which in itself insures the comfort of visitors walking about the building.

It is, therefore, with a feeling of keen satisfaction that we survey the accomplishments of the gas industry during the past five years, as well as our own progress here on the Pacific Coast. However, our own work has just begun; there still remains much to be done, much to accomplish, and I feel quite safe in stating that the coming years will see greater happenings in the gas industry. Gas, the modern fuel, marches triumphantly on, step by step, with the onward trend of progress.

The Financial Side of "Pacific Service"

Following is condensed comparative Income Account Statement for the seven months ended July 31, 1922, compared with the same period of the preceding year:

CONSOLIDATED INCOME STATEMENT

(Including operations of Mt. Shasta Power Corporation)

SEVEN MONTHS ENDED JULY 31ST

	1922	1921	Increase	Decrease
Gross Earnings, including Miscellaneous Income.....	\$22,725,894.07	\$21,954,527.17	\$ 771,366.90	.....
Maintenance, Operating Expenses, Rentals, Taxes (including Federal Taxes) and Reserves for Casualties and Uncollectible Accounts.....	13,848,968.13	14,158,223.48	.....	\$309,255.35
Net Income.....	\$ 8,876,925.94	\$ 7,796,303.69	\$1,080,622.25	.....
Net Interest Charges.....	2,972,436.64	2,838,162.47	134,274.17	.....
Balance.....	\$ 5,904,489.30	\$ 4,958,141.22	\$ 946,348.08	.....
Bond Discount and Expense.....	260,568.82	225,861.15	34,707.67	.....
Balance.....	\$ 5,643,920.48	\$ 4,732,280.07	\$ 911,640.41	.....
Reserve for Depreciation.....	2,089,407.38	1,790,295.33	299,112.05	.....
Balance to Surplus.....	\$ 3,554,513.10	\$ 2,941,984.74	\$ 612,528.36	.....
Dividends Accrued on Preferred Stock (6%).....	1,479,792.52	1,245,403.37	234,389.15	.....
Balance.....	\$ 2,074,720.58	\$ 1,696,581.37	\$ 378,139.21	.....
Dividends Accrued on Common Stock (5%).....	1,011,965.98	992,179.95	19,786.03	.....
Balance.....	\$ 1,062,754.60	\$ 704,401.42	\$ 358,353.18	.....

During the first seven months of the current year we invested \$11,250,000 of new capital in our properties, making a total increase of new capital employed in the business during the twelve months to July 31, 1922, of \$20,274,000. This program of development, necessitated by the constant growth of our business, has quite naturally been followed by substantial increases in gross and net. One good index, not only of the growth of our business, but of the progress being made generally by Northern and Central California is the net addition of 34,367 customers to our lines in the twelve months to July 31, making the total number which we were serving on the latter date 616,737.

It is the courageous investment of such vast sums by the Pacific Gas and Electric Company and other of the State's hydro-electric utilities that is keeping California in the forefront of water power development. Conclusive evidence of this is found in a

report just published by the United States Geological Survey, showing that in the first seven months of 1922 California produced 2,198,611,000 kilowatt-hours, or 27% of the total hydro-electric output of the entire country. This output exceeded New York State with its great developments on the Niagara River by 545,911,000 kilowatt-hours. The achievements of the California hydro-electric companies are all the more remarkable when the difficulties of mountain construction hundreds of miles from the centers of consumption are contrasted with the comparatively simple problems of construction and transmission encountered at Niagara Falls, with its tremendous and unfailing volume of water and close proximity to some of the largest industrial centers in the country. Another significant fact brought out in this Government report is that in the seven months of the current year to July 31 the output of hydro-electric energy in California increased 48%, as against an increase of only 7% in New York State, our nearest competitor, and as compared with an increase of only 11% for all of the states of the Union, excluding California. During this seven months' period the Pacific Gas and Electric Company alone produced 30% of the output of California and 6.4% of that of the entire country.

Reduced gas rates are now in full effect in all of the communities served by this Company and will mean an annual saving to our customers of \$2,200,000. These rate reductions were made possible by three consecutive cuts in the price of oil, the economies of production resulting from the lowered oil prices being promptly passed on to our customers in conformity with the policy established by the Railroad Commission, under which the price of gas in our territory is adjusted within thirty days to conform to the price of oil. This has put all of our gas rates practically down to a pre-war level.

INVEST AT HOME

For more than eight years this doctrine has been persistently advocated by the Pacific Gas and Electric Company, and largely as a result of this campaign for the "Home Ownership of Public Utilities" more than 34,000 Californians are now owners of the stock and bonds of this California enterprise. Roger W. Babson, in a recent bulletin, has this to say concerning the advantages of investing at home, with particular reference to the securities of local power companies:

"The field farthest away always looks the greenest." This especially applies to investments. People are continually sending their money to places like Czecho-Slovakia when there are better purchases in their own home towns. Not only is the security usually greater with local investments, but the opportunity for profit is often fully as good. Look over the names of the wealthy men in any community. You will find that the ones who have made money are not those who have sent it to distant states or countries, but those who have invested it in their own country or own home towns. There are three rules for successful investing: (1) Study fundamental conditions; (2) Put character before collateral; (3) Have faith in your own community.

At various times, different classes of local securities offer the best opportunity. At present electric power and light securities are the best local purchase. Manufacturing corporations depend almost wholly on the men in control. Railroads and tractions will, for a while, show up better; but they always will have labor and the automobile with which to contend. . . .

I have given a good deal of advice in these letters during the past twenty years that I have not taken myself; but this is a case where I have taken, and continue to take, my own medicine. I have always been on the lookout for good power company stocks, and shall continue to buy them. Therefore I am not writing as a theorist, but as one who has had twenty years' experience with all classes of local stocks. I personally buy these in preference to all others."

Pacific Service Magazine

PUBLISHED IN THE INTERESTS OF ALL EMPLOYEES OF THE
PACIFIC GAS AND ELECTRIC COMPANY

JOHN A. BRITTON - - - - EDITOR-IN-CHIEF
FREDERICK S. MYRTLE - - MANAGING EDITOR
A. F. HOCKENBEAMER - - BUSINESS MANAGER

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*The Pacific Gas and Electric Company desires
to serve its patrons in the best possible manner.
Any consumer not satisfied with his service
will confer a favor upon the management by
taking the matter up with the district office.*

VOL. XIV. SEPTEMBER, 1922 No. 4

EDITORIAL

"Industry of the United States must eventually go West, where it can have cheap power."

The words quoted are from a report prepared by Mr. O. C. Merrill of the Federal Power Commission. With a collection of facts and figures, Mr. Merrill who, in his official capacity, is in closer touch with the industrial and economic trend of the country than almost any government official, proves that a gigantic economic shift from the Atlantic to the Pacific is inevitable and will continue in greater degree as time goes on. The constantly increasing price of coal is driving many industrial plants into the use of hydro-electric power and the charts prepared by Mr. Merrill show that seventy-five per cent of the potential electric development of the country lies in the eleven Western states, with California in the lead and Washington second.

As an indication of the westward trend Mr. Merrill instances the removal to California of one of the biggest automobile tire-manufacturing plants in the country. Conspicuous, also, in the new industrial life of the Pacific Coast are two industries intended to relieve the former dependence of the United States on foreign governments, namely, the paper mills of Canada and the chemical manufactories

of Germany, both of which are now spending millions on development work on the Pacific Coast. The Merrill report shows that the trend to California is due, in great measure, to the fact that electricity and its uses have been developed in our section of the country to an extent unrivaled anywhere else in the world. Today ninety per cent of the California industries are operated by electricity and there is a greater use per capita of electricity for domestic purposes here than in any other part of the world.

In this connection it is not necessary, perhaps, to remind our readers that California now leads the world in hydro-electric power development, New York state having yielded the premier place to her golden sister during the past twelve-month. At a recent gathering of men of the electrical industry in San Francisco two live men from the East, one representing the National Association of Electrical Contractors and Dealers, the other the National Society for Electrical Development, spoke of this and paid generous tribute to the energy and initiative of the breezy men of the West who in a comparatively brief period of years had compelled their Eastern brethren to acknowledge their glory of achievement.

An interesting piece of news to the electrical world is the announcement of a project to harness the waters of the river Jordan, made famous by Holy Writ, for the purposes of electric power development. An organization styled the Palestine Development Council, Inc., is behind the project. The Council has as its honorary chairman Justice Brandeis of the United States Supreme Court, and several other men of influence in this country are prominent in the organization, notably Nathan Strauss, of New York, who is honorary chairman of the central committee of Palestine Development Leagues.

The Council has recently sent to the Pacific Coast as its advance agent Mr. Jacob de Haas, of New York, who has given to the public press an outline of the project. It involves two concessions from the Mandatory Government of Palestine held by Mr. Rutenberg, a hydro-electric engineer of European experience, and

covers the utilization of the waters of the rivers Anja, Jordan and Yarmuk and their affluents. The river Jordan drops from an altitude of 4,200 feet above the sea at Lake Tiberius to 1,290 feet below sea level when it empties into the Dead Sea, so it would appear that there is plenty of "head" to work upon. It is understood that the development includes a considerable string of water-power units, and that the first 40,000 horsepower realized will be used to irrigate the orange section of Judea, turn the wheels of Palestine's weaving and lumber mills and supply municipal lighting. Mr. de Haas says that the possibilities of Judea as an orange district equal those of California. A million boxes were packed last year, nearly all going to England. Later, when more power is developed, the electrification of railways will be considered.

It is stated that the Rutenberg plan has received the indorsement of the British Government and that the head of the de Rothschild family in Paris has agreed to subscribe \$500,000. Dr. L. C. Loewenstein, consulting engineer of the General Electric Company, reports most favorably upon the project.

While electricity, mainly, perhaps, because of its spectacular character, continues to hold the center of the stage, so to speak, we are being constantly reminded that our old standby, gas, has not only not yet seen its best days but is more than holding its own in the public utility field.

Mr. Oscar H. Fogg, secretary-manager of the American Gas Association, presents figures to show that gas sales, measured by cubic feet of output and distribution, have trebled in the last twenty years and doubled in the last ten years. The actual figures given are 101,626,366,000 cubic feet in 1901 as against 319,887,813,000 in 1920; also that the rate of increase is being steadily maintained.

"Those whose business it is to keep fully informed on the developments of our industry and others in the same field do not seek to belittle the wonderful strides made in the development of power," said Mr. Fogg. "The gas industry in the United States is older and it would be strange if its expansion were as rapid as

that of electric power where there has been a great untouched field which neither the steam nor the combustion engine could satisfactorily cover. Nevertheless, the gas industry is experiencing a steady and healthy growth, as the figures during the last periods of twenty and ten years show. It is constantly developing new and improved methods for the manufacture and distribution of its products; it is constructing apparatus and devising means for its most efficient utilization; it is making energetic and successful sale efforts and it is displacing other fuels in an increasing number of industries."

The public utilities commission of Maine has expressed in a novel and forceful way the relationship of the state, the public and the utilities.

"A public service company in its broadest sense is a partnership consisting of the state as an institution, the public as a group of customers and the company," says the commission in its sixth annual report. "The state determines the extent to which the company must go and regulates its rates, services and practices.

"The company furnishes the facilities with which these rights are exercised and services rendered. Those members of the public who constitute the customers furnish the revenue with which the company is enabled to perform these services. No public service company can exist without customers and those customers must be treated with fairness, both by the company and by the state.

"Any act or omission which denies the company a reasonable approximation of a fair deal has its immediate and reflex effect upon the customers. To obtain reasonably good service at a fair price it is not enough that the company and its customers work in harmony, pull together; each must be reasonably protected by outside agencies, individuals, communities, even the state.

"If it be one of the important functions of a public service commission to see that the company and its patrons are treating each other fairly, no lower in the scale stands the duty of seeing to it that the company and its customers are each accorded full justice by every outside agency."

OUR "PACIFIC SERVICE" EMPLOYEES ASSOCIATION

The Second Annual Outing at Stanislaus.

Stanislaus! None of the 300 members of the Pacific Service Employees Association who were fortunate enough to make the trip to the hills will ever forget the marvelous time they enjoyed there. Added to the natural scenic beauties of the place was a jolly, congenial crowd, with so much provided in the way of entertainment that it was almost impossible to cram everything into the three short days.

The only time a disappointed voice was raised was when someone bewailed the fact that the place was like a circus, in which there were at least three fascinating rings in motion all the day long! The adjective "beautiful" was almost completely worn out. Sport contests abounded.

Baseball held highest interest with three games. The deafening shrieks of the rooting sections sent the shipmunks to the trees and the squirrels to their holes in terror of their lives. The first game showed the defeat of San Francisco by Modesto, 9 to 2. The next encounter proved Stockton victor over East Bay, 7 to 2. Then the real war was on for the championship. The outcome of the final game was in doubt to the very end, when Modesto defeated Stockton, 7 to 6.

But that was not the only combat. Stanislaus tussled hard against a mixed team in a tug-of-war. For a long time it seemed as though strength had met equal strength, but the mixed team boys were at last proclaimed victors.

Perhaps the most interesting struggle of all was the transformer hanging contest. There were three entries, San Francisco, Modesto, and a mixed team. Modesto captured first money, time 22 minutes, 22 2/5 seconds.

After the strenuous games, the appetizing odors from the open-air kitchen drew everyone back to Clarke's Flat. All meals were served at huge tables under the trees in this beautiful meadow. Mr. Jack Tulloch

directed the feast with such able flunkies in attendance as Jack Solari, Charles Noack, C. R. Gill, Messrs. Kimmel and Stubblefield of Fresno, N. A. Lambert, and a score of other efficient assistants. Joe Enos managed the barbecue in his usual able way.

Only one thing can add to the beauty of a mountain evening, and that is—a campfire. Every evening a huge bonfire sent sparks up to the sky, while trees in the background appeared the blacker in contrast to the snapping flames. Around the bonfire center the jolly crowd sang old and new songs until throats were hoarse and the fire had died down. Dancing was the next entertaining feature. The novelty of fox-trotting in an out-of-door pavilion instead of inside a stuffy, hot hall was indeed a treat. The snappy strains of the P. S. E. A. orchestra furnished the music for dancing, and was much complimented by all.

Other "different" methods of entertainment were the trip up the almost-perpendicular tram to Forebay, 1,500 feet above camp—incidentally adding to the delight of beholding the whole landscape spread out before one in a picturesque panorama, the shiver of a real scenic-railway thrill!—and the spectacular sight when water capable of producing 10,000 kilowatts of electric energy was released for three minutes. This great body of water struck the canyon opposite the power house, building a bridge of spray that was indeed beautiful to witness. Above this "water bridge" a fine spray ascended, spreading a mist over the entire scene. Beautiful!

The San Joaquin Section, which so royally entertained, ably assisted by Stanislaus' superintendent, W. P. Bedgood, deserves an immense amount of credit. An alluring picture will always be conjured up when we hear that word—"Stanislaus!"

MRS. ROBT. D. JESSEE.

Tidings From Territorial Divisions

East Bay Division

With building permits totaling \$10,-000,000, the amazing growth of Oakland during the past seven months is shown in a digest of building operations compiled for city officials by the building department, demonstrating that construction work is reaching a point never before achieved in the east bay.

The digest covers the time between January 1 and August 1. The number and classification of buildings, with their value, is as follows:

170 commercial.....	\$3,436,917
1,596 one-story homes ..	4,627,291
168 two-story or over ...	1,048,615
39 flats.....	402,710
61 apartments.....	1,232,710

The new homes in Oakland total 1,744, with a total value of \$5,675,906.

The digest, of course, applies to all building permits issued and many of the structures are not yet completed, but city officials estimate that with nearly \$10,-000,000 invested in a half-year, Oakland is breaking all construction records.

The Remar Candy Company has leased, from Gray Brothers, the factory building located at 2833 Hannah street, has installed machinery and is now operating. The Remar Candy Company is a separate corporation from the Remar Company (bakery) at 46th and Adeline.

Simpson Manufacturing Company has purchased property and erected a factory at 4246 Holden street on the Emeryville industrial tract. This company makes a specialty of manufacturing window screens and screen doors. The Simpson Company controls a special process by which the wire screen is lock-stripped into the frame without the use of tacks, thus holding every strand firmly, resulting in a better stretching of the screen. The company reports having developed a large demand for its product by local contractors.

The Master Products Company, owned by W. W. Johnson and H. G. Peake, has leased 30,000 square feet of factory space at the Union Construction plant, foot of 14th street, western water front. This concern will manufacture radio sets complete, also high grade parts such as sockets, barometers, vario-couplers, rheostats, condensers, amplifying transformers, radio frequency transformers, binding-posts, jacks, plugs, loud-speakers, etc. The factory will turn out radio sets in ordinary boxes and also specialize in manufacturing sets enclosed in high grade ornamental cases similar to the best phonograph cases now in the home. This firm is copyrighting the work "Master" and will put it on all products as a trade name. Machinery for the new venture is now installed—dies, etc., being made by the Continental Machine Works of Oakland. Product will be marketed to manufacturers, jobbers and retailers only.

The electric cooking demonstration held at the County Club house at Centerville on the evening of August 15 was well attended. The audience was very appreciative of the effort made to instruct in the advantages of electric cooking. Mrs. A. Gronley was the lucky winner of the Westinghouse toaster.

On the evening of August 16 Niles had a large audience at the I. O. O. F. Building who listened to Mr. F. Bishop discourse on electric cooking and water heating. Much interest was shown in the demonstrations and many intelligent questions were asked. A radio concert and moving pictures made a very pleasant evening.

At Irvington on the evening of August 17 Maple Hall was the scene of a large and attentive gathering who witnessed a demonstration of the super automatic Hotpoint-Hughes electric range. Mrs. Farnsworth prepared a very appetizing dinner that made every one hungry just to smell it. The audience after a pleasant

evening, partook of the dinner and pronounced it excellent. Mr. F. Southerland of the East Bay Division handled the demonstration with much ability and made many friends for electric cooking. These educational gatherings will result in many sales of electric ranges and water heaters in Washington Township.

A most remarkable irrigation well was completed this month on the O. V. Hirsch property at Irvington. According to Mr. Hirsch the well was located by a willow "water witch" handled by his brother, W. W. Hirsch.

The well was bored on the top of the highest hill of the Hirsch ranch, and was sunk 325 feet before water gravel was reached. It then penetrated fifty-seven feet of wonderful water-bearing gravel.

Mr. Hirsch intends to install a seventy-five horsepower motor at this well and pump at least one thousand gallons a minute. If the well permits, a large prune growing area, now without irrigation facilities, will be watered. Mr. Hirsch estimates the value of his well to be \$30,000.

The farmers and business men of Centerville have started the long talked of packing house and the first unit is now being constructed. This will be a means of bringing added prosperity to the whole east end of Alameda County. All products including fruits and vegetables, especially tomatoes, will be shipped east in large quantities.

The farmers about Newark, Alvarado, Decoto and Centerville are now busy getting ready to plant an immense acreage of cauliflower for eastern shipment and large plantings of spinach are to be made for winter canning by the local canneries. "Pacific Service" enters greatly into all the industries in this district.

During the much talked of Farm Products Show at Hayward, August 9, 10, 11, 12, the visitors were given something to talk about by the "Pacific Service" exhibit of an electric range in operation.

The booth, through the efforts of Mr. Lucio, agent at San Leandro, Mr. W. D. Oswill, agent at Hayward, and Mr. F. J.

Southerland, Oakland New Business Department, was made into an attractive kitchen where Miss Scott of the Westinghouse Company demonstrated the effective and perfect cooking of the electric range. On an average of eight delicious cakes were baked each day and served to the visitors, who were very much interested in the results.

This exhibit was very much worth while as several orders for electric ranges have come in. Many people who had never before realized that an electric range could render efficient service, saw wonderful possibilities for the housewife.

O. J. Mead, owner of a chain of restaurants throughout the state and well known local business man, has announced the purchase of the Boniere Bakery and pastry shop at 1417 Park street, Alameda. The deal for the purchase of the place was concluded Saturday, August 19, with the former owner, Jack Callinberg. Mead will conduct the Boniere much on the same order that it has been conducted and will use it as an auxiliary bakery to furnish bread and pastry for not only his Alameda Cafe but for his Oakland eating houses as well. Owing to the expansion of his business, Mead has found it necessary to have additional room and a larger bakery.

B. C. Forbes, famous financial writer says, "Oakland, situated just across the bay from San Francisco, is a coming center of industry, especially manufacturing.

"Oakland and her sister cities of Berkeley, Alameda and Richmond, lying along the east shore of San Francisco bay, with a present aggregate population of 350,000, are destined to be the industrial centers of the Pacific coast.

"The fact that so many national corporations have built plants in the east bay industrial center is eloquent testimony to the fact that Oakland furnishes all the elements necessary for successful large-scale industrial operation.

"The growth of industry and commerce on the Pacific Coast in going to be very great within the next few years.

"You have all the potentialities of a great municipality and have before you a business growth that to my mind is staggering."

J. C. J.

Colgate Division

The days of gold dredging are nearing their close in the Oroville district.

According to Emory Oliver, general manager of the Natomas Company, the two boats operated by that company will have completed their work within the next year. The American Gold Dredging Company will probably mine its ground in two years.

These two boats are the sole survivors of a fleet of forty gold ships operating in this territory ten years ago.

However, the disappearance of mining will not leave Oroville a ghost town by any means.

Ten years ago gold dredging was the principal industry of the city. Despite the fact that the city in this period has seen almost the disappearance of its chief industry, Oroville today is larger, busier and more prosperous than it was at that time.

The railroad payroll, canneries and lumber mills and the development of the fruit area around Oroville have more than compensated for the loss of the mining payroll.

With the awarding by the city council of Marysville to Captain J. D. Hutchinson of the contract for the dredging of Ellis Lake, assurance was given that actual work of improving the spot will be commenced within six weeks. Hutchinson's bid amounted to \$29,000. He is required to place in the hands of the city manager a bond in the sum of \$14,000, guaranteeing the city against labor and material losses.

Captain Hutchinson will immediately build a modern dredger and before many weeks have passed, the lake will have been deepened, widened and otherwise improved.

Two of the largest dredgers in the world have just been completed by the Yuba Manufacturing Company of Marysville, and the parts shipped to Nome, Alaska, for the Hammon Consolidated Gold Field Company. A crew of one hundred and fifty men has been kept at work day and night in order to complete the manufacture of the parts for

these two gold dredgers. All the parts were built here and have been shipped to Alaska, where they will be assembled by a construction crew of the Yuba Manufacturing Company.

These two dredgers will be assembled this winter and will commence operations at Nome next spring on the vast area of proven grounds recently acquired in Alaska by W. P. Hammon and associates of San Francisco. These two dredgers were built at a cost of \$1,000,000.

Marysville is going to have a tourist hotel that will cost approximately \$400,000.

This was definitely decided when the Yuba County Chamber of Commerce directors, upon recommendation of the hotel committee of the chamber decided to put over the project, and entered into a contract with F. D. Cloud of San Francisco to handle the financial campaign to be put under way at once.

A company will be formed immediately which will be incorporated probably for \$400,000, which will cover the cost of land, building and furnishings. E. C. J.

San Joaquin Division

The San Joaquin County Fair, which was held at Stockton from August 24 to 30, proved to be the biggest and best fair in the history of that county. The officials in charge of the big show are to be congratulated on their ability for putting on a fair which came up to even the greatest expectations. "Pacific Service" maintained a booth there, representing "The Modern Electric Kitchen" which was complimented on every side as a splendid exhibit.

Prominent mining men from all parts of the state gathered at Modesto during the month of August and participated in the meetings of the California Metal and Mineral Producers' Association. Among those present were many gold dredging chiefs, and as one of the features of the meetings a side trip to the La Grange Gold Dredge located near Modesto was thoroughly enjoyed by all present.

The Santa Fe ice plant, located at Riverbank, eight miles from Modesto

and constituting one of the latest large additions to the roll of users of "Pacific Service," is now operating at full capacity, averaging a daily output of 200 tons of ice. The plant is operated by 600 h.p. in electric motors and requires the services of 40 men who not only look after the ice-making, but handle the storing of ice and the icing of refrigerator cars.

The Argonaut mine disaster which has filled much space in the daily press since it occurred on August 27 strikes close to home in the San Joaquin Division. The Argonaut mine is located in the town of Jackson, Amador County, eight miles from Electra power house, and is one of the largest of our consumers in the Electra District.

The assessed valuation of the City of Oakdale has shown another substantial increase during the past year despite the falling off in automobile and personal property values. The total value as reported this year is \$1,211,430 as compared to \$1,174,580 for last year, or an increase of about 3%.

Tuolumne County has a big marble industry and, with the reorganization of the Bell Marble Company, which is now operating on an exceptionally fine body of stone, this industry should show enormous growth.

The Bell Marble Company's property is located near the historic town of Columbia, and ever since its inception the company has progressed very rapidly. Today the output from its quarries can be found in some of the largest and finest public and private buildings in this State. The marble has been liberally utilized in such buildings as the Golden Gate and Warfield theatres, the Metropolitan Life and Matson Navigation Buildings, all in San Francisco. In order to keep up with the demand, the Bell company has made vast expenditures for modern improvements to facilitate the quarrying process. It is of interest to note that all the waste marble at the Bell quarry is taken by the Pacific Lime & Plaster Company, whose plant is located nearby, and is there manufactured into a very high grade lime.

Stanislaus County scored a great triumph at the California State Fair when the judges of the exhibits pronounced the Stanislaus Agricultural exhibit the best of the forty county exhibits. The prize won by the county carries with it the Governor's cup, which was personally presented by Governor Stephens to Mr. George McCabe, Secretary of the Stanislaus County Board of Trade.

Ranchers and farmers throughout the county who aided materially in the work of preparing the big exhibit are jubilant that their produce, in competition with the best of the state, has made such a remarkably good showing.

Modesto has become a terminus for the first aerial express line in the United States, and daily flights between San Francisco and Modesto have been inaugurated by Walter T. Varney, aviator-capitalist. All kinds of express are being handled by the new service. Later, it is announced, the service probably will be extended to other portions of the Valley.

Turlock, sometimes known as the "Melon City," is still shipping about thirty carloads of its products daily. The majority of the shipments consists of grapes, with some varieties of melons, including casabas and honeydews. There is at present great activity in grapes, some varieties bringing in as high as \$125 per ton. This, together with good prospects for a large sweet potato crop, estimated at about 1,000 carloads, promises an era of prosperity for the Turlock farmers.

The mineral field, of which Sonora is the center, covers a wide expanse of territory, extending in a belt miles wide from the Stanislaus river on the north to the Tuolumne river on the south, and embraces the main and side lines of the great Mother Lode. In the past this territory has had prodigious yields of the yellow metal, and geologists say this field will again yield untold millions.

At the present time extensive operations are being carried on by the Nevada Wonder Mining Company at Jackass Hill and by the Tonopah Mining Company of Nevada at the Crystalline and Alabama mines. The Dutch Mine at Quartz, which

embraces the Sweeney, App, and Heslep Mines, is now in new hands and activity is scheduled for the near future. The Belmont-Shawmut, the county's greatest producer, is being worked full-handed, and is milling good ore; which is returning a handsome profit. Many mines of promise are now being investigated and it is reasonable to hope that the mining industry in this section of the Mother Lode will be restored to the activity which it enjoyed some twenty-five or thirty years ago. L. J. N.

San Francisco Division

GAS GENERATION DEPARTMENT

Number one oil gas generator at Potrero Plant is being removed by the wrecking crew and is to be sold as junk steel. This generator was the first one erected at Potrero for the manufacture of oil gas. It performed faithful service for a great many years, but since the improved generators were finished it has been used only as a standby unit.

Six new steel tower scrubbers are to be erected at Potrero, giving the plant an additional scrubbing capacity of 10,000,000 cubic feet a day. J. M. D.

NEW BUSINESS DEPARTMENT

Installations signed up recently:

Eighth avenue and Fulton street, salesmen—Fitzpatrick and Barker. One of the finest apartment houses in the western part of San Francisco has been signed up by our company, consisting of twenty-four large apartments. Mr. Duvargas, the owner, purchased from us twenty-four super-automatic Hotpoint Hughes electric ranges. The load on these stoves is 168 kilowatts.

No. 1 Twelfth avenue, salesman—Barker. Louis Kahn purchased twenty-four kilowatts in ranges and water heaters.

Seventh and Howard streets, salesman Augustine. Chas. Danner & Bro. printing shop has become a consumer of ours. This firm will undoubtedly become one of the leaders in its line. Load to begin with totals twenty-five horsepower.

NW corner Vallejo and Battery, salesman—Barbieri. Petri Italian-American

Cigar Company signed with us for their new seven-story building. This mammoth firm is the result of a consolidation of two of the biggest and best known tobacco companies in the West. Installation totals fifty-two horsepower and runs one of the most up-to-date and efficient plants in San Francisco.

Seventh and Market streets, salesman—Lorigan. The Rialto Theatre, now showing legitimate plays to packed houses, has been placed on our lines. We have had more show houses become our consumers this year than ever before.

105 Market street, salesman—Barbieri. The College Knitting Mills, formerly of Berkeley, have moved to above location and have been added to our growing list of consumers.

Mr. McLaughlin of the new business department made a record this month in the sale of stock, selling 565 shares of first preferred, amounting to \$49,437.

F. T.

GAS DISTRIBUTION DEPARTMENT

The success of a department is based on the strength of its organization. This is clearly demonstrated here by the manner in which the employees of this department cheerfully purchased the last issue of our company's first preferred stock.

To date we have received subscriptions in excess of \$16,887.50, the majority calling for one share each. Employees also succeeded in interesting their personal friends for approximately \$4,000 worth of this issue, making a total of over \$20,887.00. This expresses the confidence the employees have in the stability of their Company and the management of its officers.

E. G. C.

ELECTRIC DEPARTMENT

There have been installed, at Station "A," balance relay protectors on the turbo generators in order to prevent undue damage in the event of a ground or breakdown in the generator winding. Should a ground occur in any phase of the generators the relays will automatically open the main generator oil switch, clearing the machine from the line. After this operation the field switch will open

and the balance steam valve and the air damper will close, thereby cutting off the steam and the air intake and preventing the generator from being destroyed by fire.

The new addition to Station "G," which will house the new 11,000 and 4,100 volt bus structure along with the necessary transformers and feed regulators is rapidly nearing completion and we expect soon to cut in this equipment, which will take care of the rapidly increasing load in this section.

On August 5 the new bank, consisting of 3—10,000 KVA Allis-Chalmers transformers, were cut in at new Station "H," thereby officially putting the station in operation. Work is rapidly progressing on the building which will house the 11 KV bus and oil switches as well as the operating room. The rest of the apparatus, namely, the 60 and 100 KV bus switch structure is of the outdoor type.

The steam department is running a 6-inch main line extension 800 feet along Stevenson street to supply the new Crystal Market and other buildings being erected in the vicinity of Eighth, Mission and Market streets by Rosseau and Rosseau.

A new section for one of the smoke stacks, weighing approximately $6\frac{1}{2}$ tons,

has been installed at Station "A." This was lifted in one piece with the aid of derricks.

A. U. B.

TRANSPORTATION DEPARTMENT

What are the responsibilities of the garageman with regard to the cars left in his care?

A garageman must use ordinary care for the preservation of an automobile left in his care and he is responsible for any loss or damage resulting from his negligence or that of his employees. Ordinary negligence means failure to use the same care that he would use with his own property.

He is responsible for:

1. Damage by fire resulting from rags allowed to accumulate, careless handling of gasoline, neglect to enforce the rules against smoking, neglect to remove the cars in his care to a place of safety when a fire threatens from outside, provided there is time to do so.

2. Theft of cars resulting from his negligence or that of his employees in leaving the garage unattended, or allowing any unauthorized person to take out a car.

3. Theft of personal property left in cars stored if he has knowledge of its presence in the cars.

4. Damage resulting from handling of cars by employees.

E. C. W.

IN MEMORIAM

ISAAC N. TAYLOR

We report with sorrow the death of Isaac N. Taylor, a member of the collection staff of the San Francisco Division. He passed away suddenly August 30, 1922, while temporarily sojourning at San Jose.

"Ike," as he was affectionately known to his colleagues, entered the employ of the Company October 31, 1913, thus having rounded out nearly nine years of loyal service. The Company's interests were his own—he worked faithfully and well.

He was born in Northampton, Massachusetts, and is survived by Samuel H. Taylor, a brother, well known in the electrical industry of the Pacific Coast, and by a sister residing in Massachusetts. Our sincere sympathy is extended to them.

PACIFIC GAS AND ELECTRIC COMPANY

A California Corporation

Managed by Californians

Operated by Californians

"PACIFIC SERVICE" REPRESENTS (AS OF DEC. 31, 1921):

- 8,213 employed in all departments.
- \$183,000,000 capital invested in gas, electricity, railroads and water plants.
- 54,000 square miles of territory in which it operates—an area greater than that of England and Wales.
- 18,204 stockholders, December 31, 1921.
- 36 counties of the State in which it transacts business.
- 599,113 consumers served with gas, electricity, water and steam as of December 31, 1921.
- 1,800,000 people served in 36 counties, which is over 50% of the State population.
- 233 cities and towns in which it supplies service directly and through other companies.
- \$13,205,438 annual wages paid employees in 1921.
- \$2,630,890 taxes, State of California, for 1921.
- \$634,445 taxes, Federal Government, for 1921.
- 308,244 horsepower developed in 28 electric water-power plants.
- 173,592 horsepower developed in 4 electric steam plants.
- 481,836 total horsepower developed in 32 plants.
- 1,021,820,689 K. W. hrs. sold in 1921. This is equivalent to the effort of 3,400,000 men.
- 11,483,551,100 cubic feet of gas sold in 1921.
- 19 gas plants.
- 47,100 miles of wire used in distributing electricity, which could be strung around the world over $1\frac{1}{2}$ times.
- 3,168 miles of mains used in distributing gas, approximately the distance between San Francisco and New York.
- 1,100 miles of mains and ditches used in distributing water.
- 1,300 miles of track of street railways supplied with electric power.
- 64,080,000,000 gallons of water stored in 98 lakes and reservoirs. This amount of water would supply the city of San Francisco at the present rate of consumption for approximately 5 years.
- 93,501 acres of land owned in California—over three times the area of San Francisco.
- 233 parcels of property owned in cities and towns.
- 3,713,717 barrels of California oil used in 1921.
- 149,228 horsepower in agricultural motors depending on "Pacific Service."
- 455,380 horsepower in mining, electric railways, manufacturing and other motors depending on "Pacific Service."
- 52,500 street lamps, gas and electric, lighted by "Pacific Service."
- 5,234,607 incandescent lamps nightly lighted.
- 1,044,217 horsepower connected to system.

PACIFIC GAS AND ELECTRIC COMPANY

Head Office: 445 Sutter Street

San Francisco

Branches in all principal cities and towns of thirty-six counties of North Central California.



Pacific Gas and Electric Company Furnishes

"PACIFIC SERVICE"

TO OVER 616,000 CONSUMERS OF

GAS. ELECTRICITY. WATER. STREET RAILWAY

1,715,959 Total Population Served in Thirty-six of California's Counties

CITIES AND TOWNS SERVED BY COMPANY

	DIRECTLY		INDIRECTLY		TOTAL	
	No.	POPULATION	No.	POPULATION	No.	POPULATION
Electricity.....	170	1,117,541	61	156,411	231	1,273,952
Gas.....	58	1,128,216	2	8,600	60	1,136,816
Water (Domestic).....	18	61,719	8	15,488	26	77,207
Railway.....	1	65,908			1	65,908

Place	Population	Place	Population	Place	Population	Place	Population
Alameda.....	28,806	El Verano.....	400	Meridian.....	200	San Leandro...	5,703
Albany.....	2,462	Emeryville.....	2,390	Millbrae.....	300	San Lorenzo...	500
Alvarado.....	1,000	Escalon.....	600	Mills.....	400	San Martin....	250
Alviso.....	517	Espartero.....	200	Mill Valley....	2,534	San Mateo.....	5,979
Amador City..	377	Fairfax.....	250	Milpitas.....	300	San Pablo.....	500
Anderson.....	750	Fairfield.....	1,008	Mission San		San Quentin...	3,000
Angel Island..	500	Fair Oaks.....	300	Jose.....	500	San Rafael....	5,512
Antioch.....	1,936	Fall River Mills	300	Modesto.....	9,241	Santa Clara....	5,220
Aptos.....	300	Farmington....	300	Mokelumne Hill	900	Santa Cruz....	10,917
Arbuckle.....	900	Felton.....	300	Monterey.....	5,479	Santa Rosa....	8,758
Atherton.....	500	Folsom.....	2,000	Morgan Hill..	646	Saratoga.....	500
Auburn.....	2,289	Forestville....	250	Mountain View	1,888	Sausalito.....	2,790
Barber.....	500	Fresno.....	45,086	Mt. Eden.....	200	Sebastopol.....	1,493
Belmont.....	375	Gilroy.....	2,862	Napa.....	6,757	Shasta.....	200
Belvedere....	616	Glen Ellen....	1,000	Nevada City...	1,782	Shellyville....	200
Benicia.....	2,693	Gonzales.....	500	Newark.....	500	Sherridan.....	250
Ben Lomond...	400	Grass Valley..	4,006	Newcastle....	750	Smartsville....	300
Berkeley.....	56,036	Gridley.....	1,636	Newman.....	1,251	Soledad.....	400
Bigs.....	683	Grimes.....	500	Niles.....	1,000	Soquel.....	400
Bolinas.....	200	Groveland....	500	Novato.....	400	Sonoma.....	801
Brentwood....	400	Guerneville...	800	Oakdale.....	1,745	Sonoma.....	1,684
Broderick....	700	Hamilton City.	250	Oakland.....	216,261	South San	
Burlingame...	4,107	Hammononton..	500	Oakley.....	200	Francisco.....	4,411
Byron.....	350	Hayward.....	3,487	Occidental....	600	Standard.....	500
Campbell....	600	Hercules.....	373	Orland.....	1,582	Stanford Uni-	
Capitola.....	300	Hillsborough..	931	Orville.....	3,340	versity.....	2,700
Carml.....	638	Hollister.....	2,781	Pacheco.....	300	Stockton.....	40,296
Cement.....	1,000	Honcut.....	500	Pacific Grove..	2,974	Suisun.....	769
Centerville..	1,000	Hughson.....	250	Palo Alto.....	5,900	Sunol.....	350
Ceres.....	637	Ilone.....	1,000	Paradise.....	500	Sunnyvale....	1,675
Chico.....	9,339	Irvington.....	1,000	Patterson.....	694	Sutter City....	2,650
Colfax.....	573	Jackson.....	1,601	Penn Grove....	200	Sutter Creek...	920
College City..	250	Jamestown....	750	Penryn.....	250	Tehama City...	196
Collinsville..	200	Kennett.....	464	Perkins.....	300	Tiburon.....	400
Colma.....	1,500	Kentfield....	500	Petaluma.....	6,226	Tracy.....	2,450
Columbia.....	200	Kenwood.....	300	Piedmont.....	4,282	Tres Pinos....	300
Colusa.....	1,846	Keawick.....	200	Pike City.....	200	Tuolumne....	1,500
Concord.....	912	King City.....	1,048	Pittsburg.....	967	Turlock.....	3,394
Cordelia.....	300	Knights Ferry	200	Pleasanton....	4,715	Wacaville....	1,254
Corning.....	1,449	Knights Land-		Port Costa....	991	Vallejo.....	21,107
Corte Madera.	607	ing.....	400	Port Costa....	900	Vina.....	300
Cotati.....	200	La Grange....	200	Princeton.....	300	Vineburg.....	200
Cottonwood...	500	Larkspur.....	612	Red Bluff....	3,104	Walnut Creek..	538
Coyote.....	200	Lathrop.....	600	Redding.....	2,962	Warm Springs.	200
Crockett.....	1,500	Lewiston.....	200	Redwood City.	4,020	Waterford....	250
Crow's Landing	300	Lincoln.....	1,325	Richmond.....	16,843	Watsonville...	5,013
Daly City.....	3,779	Live Oak.....	300	Rio Vista.....	1,104	Wheatland....	435
Danville.....	400	Livermore....	1,916	Ripon.....	500	Williams.....	650
Davenport....	300	Lomita Park...	600	Riverbank....	200	Willows.....	2,190
Davis.....	939	Loomis.....	500	Rocklin.....	643	Winters.....	903
Decoto.....	300	Los Altos.....	500	Rodeo.....	300	Woodland.....	4,147
Del Monte....	300	Los Gatos.....	2,317	Roseville.....	4,477	Woodside.....	300
Denair.....	200	Los Molinos...	200	Ross.....	727	Yolo.....	350
Dixon.....	926	Madison.....	300	Sacramento...	65,908	Yuba City....	1,708
Drytown.....	200	Manteca.....	1,286	Salinas.....	4,308		
Duncan's Mills	200	Mare Island...	600	San Andreas...	1,183	Total Cities	
Durham.....	250	Martinez.....	3,858	San Anselmo...	2,475	and Towns...	1,347,844
Dutch Flat...	750	Marysville....	5,461	San Bruno....	1,562	Add Suburban	
Eldridge.....	500	Maxwell.....	500	San Francisco.	506,676	Population..	368,115
El Cerrito...	1,505	Mayfield.....	1,127	San Jose.....	39,642	Total Popula-	
Elmira.....	350	Menlo Park....	900	San Juan.....	350	tion Served..	1,715,959

Unmarked—Electricity only.

—Gas only.

—Gas and Electricity.

—Gas, Electricity and Water.

—Gas, Elect. and St. Railways.

—Electricity and Water.

—Electricity supplied through other companies.

—Gas supplied through other companies.

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Gas is now furnished to more than 300,000 consumers in Central and Northern California by "Pacific Service." During the year 1921, over thirteen billion cubic feet of gas were manufactured in the Company's nineteen Gas Plants using almost one hundred million gallons of oil in the process. Over eight million cubic feet of gas were manufactured during the first seven months of this year to supply our consumers' needs.



Falls of the Pit River, Shasta County

Diverting a river through a two-mile tunnel

is merely one incident of the construction program in the Pit River region which has been in progress for two years and which culminates this month in the placing in operation of Pit River Plant Number One, with an installed capacity of 93,000 horsepower. The entire flow of water that drops over the falls will pass through the tunnel to turn the wheels of this gigantic plant. Other plants, which will utilize this water again and again in the lower reaches of the Pit River, will be constructed as required.

Pacific Gas and Electric Company first preferred six per cent cumulative stock

affords to investors an opportunity to aid in this constructive work of subjugating nature's forces to man's use. Money realized from the sale of this stock is usefully and profitably invested in new power plants or other developments which add substantially to the state's productive wealth.

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PIT TRANSMISSION LINE CROSSING THE SACRAMENTO RIVER NEAR COTTONWOOD

Vol
14

OCTOBER 1922

No
5

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Pacific Service Magazine

Volume XIV



Number 5

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The artificial waterfall at Pit No. 1, made by discharge from the spillway leading from the surge-chamber.

Power From the Pit River Received Into the "Pacific Service" System

Twin celebrations at Pit No. 1 power-plant and the Vaca-Dixon receiving substation mark an event of immense importance to the future development of north-central California.

The first important stage of the Big Job up north has been reached. Pit No. 1 is an accomplished fact. The giant power-house on the river bank, the progress of whose construction has been watched with the keenest interest by the entire engineering world, hums night and day with the ceaseless whirl of the machines, and along the 200-mile transmission line from that point to our company's new distributing substation in peaceful Vaca valley the precious energy there generated travels tirelessly upon its errand.

Saturday, September 30, was a gala day not only with "Pacific Service" but with the entire section of California covered by its operations. For that date marked the formal opening of the first big unit of the new hydro-electric power development, and in honor of the occasion twin celebrations were held, the one at the point of generation among the pines that shade the banks of Pit river, the other in the open stretch of the Sacramento valley two hundred miles away, at the point where the power that will ultimately be dispatched across country at the

unprecedented pressure of 220,000 volts is received for re-transmission to important distributing substations that have been constructed at vital points in our "Pacific Service" territory.

These were not merely "Pacific Service" celebrations in the strict sense of the term. The harnessing of the waters of the Pit river region, with their constant and dependable stream-flow, means more than a mere public utility achievement. It assures uninterrupted prosperity to a section of California that in potential development, agriculturally, industrially and every other way, is second to none in our western wonderland. So, it will not surprise our readers to learn that the civic organizations of northern California came to the front and offered to take charge of such ceremonies as should be held fitting to honor the arrival of the first kilowatt of power that should speed its way along the transmission wires from the mountains of far-away Shasta county.

The Chambers of Commerce of Sacramento and Redding and the Northern California Counties Association were leaders in this enter-

prise of exploitation. Realizing the importance of hydro-electric development to their own immediate territory and, also, to the entire northern section of the state, they felt that the opening of such a tremendous industry should carry with it proper popular recognition; accordingly, they suggested that the civic organizations of northern California be permitted to conduct the attendant ceremonies, so that a better understanding of hydro-electric development and its possibilities might be had by the citizens of the various communities in that section. These civic organizations were held to be vitally interested in the enterprise because it opened up industrial possibilities to every community in northern California, and it was felt that the personal visit of as many citizens as possible on this important occasion would help to bring about, in the most telling fashion possible, the realization of this tremendous asset not only to northern California but to the entire state.

A meeting of the representative Chambers of Commerce was held in the city of Sacramento during the first week in September and the proposition thoroughly discussed. As a result, Mr. A. S. Dudley, secretary and manager of the Sacramento Chamber of Commerce, was elected chairman of the executive committee; Mr. A. C. Madden of the Dixon Chamber of Commerce was chosen to take charge of the program and all arrangements at Vaca-Dixon substation, while Mr. R. C. Evans, man-

aging secretary of the Redding Chamber of Commerce, was appointed to take charge of the ceremonies at Pit river. The executive committee in turn invited the co-operation of all active civic organizations it was possible to reach. As a result, some sixty or seventy communities were represented at the celebrations.

It was all wonderful. Despite the comparative inaccessibility of the location a concourse of between 600 and 700 people gathered in and around the handsome powerhouse at Pit No. 1 when, in response to the signal from the other end of the transmission line that all was ready, dainty Miss Isabel Creed closed the switch that set the first generator in motion and dispatched the precious current on its way. At the receiving end two hundred miles away Mr. Dudley presided over a gathering of between 5,000 and 6,000 souls, who, in an atmosphere of glorious sunshine and amid the waving of banners, the hoisting of the national emblem and the resounding echoes of patriotic song, voiced their appreciation of a great event.

Saturday, September 30, 1922, stands upon every calendar in north-central California as a day that marks the passing for all time of fear of power shortage in that section of our golden state. Think what that means to the great program of progress and development that in the not too distant future must give California first place among the commonwealths of the Union!

Representative Gathering at Pit No. 1 Witnesses the Great Plant Put in Operation

When the sun peeped over the wooded hillside overlooking Pit river canyon that memorable morning it looked down upon a scene that was passing fair.

Pit No. 1 camp was in holiday dress for the occasion. It was evident to the most casual observer that Superintendent Jim Martin and his men had worked night and day to make things spick and span for the visiting crowd. Though the temporary structures that had housed the construction gangs were still in evidence, all debris, all impedimenta usually noticeable where construction work is in progress, had vanished from the scene and the entire plant looked shipshape and trim. From the tailrace to the power-house, from the power-house to the penstocks and up the slope to the tunnel portal, there was a completeness of constructional detail that left nothing to be desired. Simpler conditions were observable on

the Fall river side of the development, where diversion dam, intake canal, head-gates, all looked polished and imposing and ready for inspection.

Of course, the giant power-house was the center of observation. It stood there in its resting place at the bottom of the slope, in its Gothic design looking for all the world like some border castle of the long ago. One might almost have compelled the imagination to depict a grim, mail-clad warrior patrolling the battlements, the glint of sunlight upon his armor, while from every turret window protruded some deadly menace in the shape of arquebus, or, perchance, cross-bow, as the warder's bugle within sounded the call to arms. The general effect was enhanced by the moat-like stilling basin at the outlet from the turbines. The national emblem floated from the towers at opposite ends of the building.



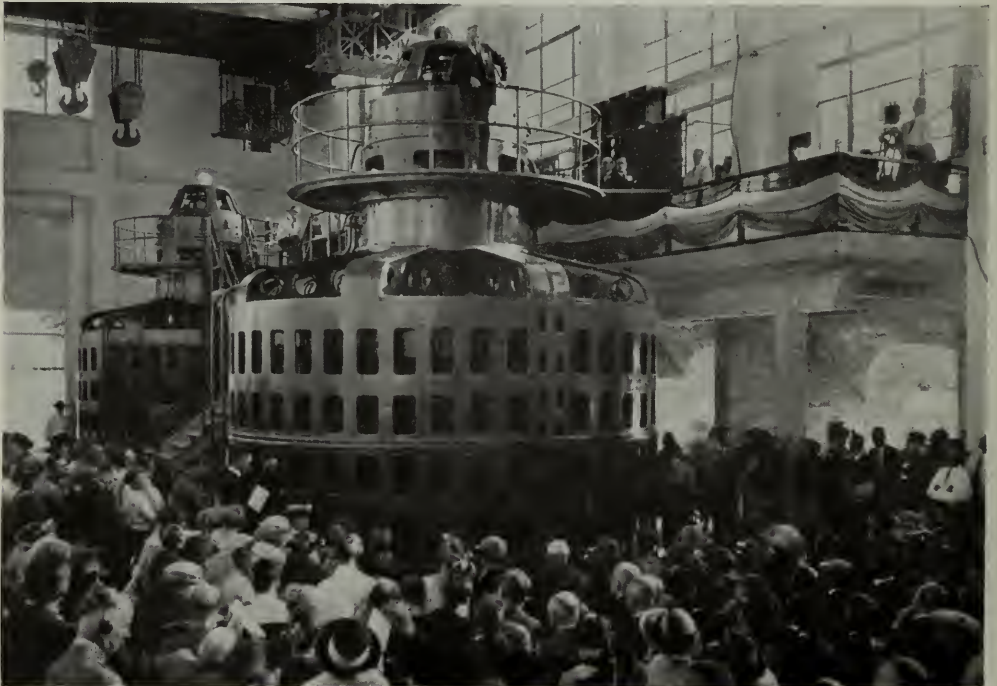
The crowd surging into the power-house to participate in the opening ceremonies.

Arrangements had been made with the culinary department for the entertainment of several hundred visitors, while every available inch of sleeping space had been called into requisition for the housing of those who were expected to spend the night in camp. They came in from all points of the compass. Our president, Mr. Creed, accompanied by his wife and daughter, headed a delegation from San Francisco that traveled by train via the Southern Pacific as far as Sisson and the McCloud river railroad from that point in. The delegation was composed largely of men of affairs interested in development work and included in its personnel several public officials of note. One of the most enthusiastic admirers of our construction achievement was Dr. David P. Barrows, president of the University of California. This delegation numbered one hundred.

Under the joint direction of the Redding Chamber of Commerce and the Northern California Counties Association a string of automobiles conveyed guests

from Redding over the mountains by way of Montgomery creek and Burney, a run of about seventy-two miles. Others came in by auto from Fall River Mills and other settlements in the surrounding territory, while some made the journey from points still farther away. It may be said, generally, that outside of the delegation from San Francisco the attendance at the opening ceremonies was contributed mainly by the four counties in which the Pit river basin lies, namely, Shasta, Siskiyou, Modoc and Lassen.

There was not a cloud in the sky and in the air was the balm of Indian summer. There was no warning of the storm that broke, providentially, some twenty-four hours later. In the center of the plaza—if one may use that term—in front of the clubhouse, the Pit river band, composed entirely of camp employees, discoursed inspiring music. Everybody seemed to feel in accord with the general scheme of things. Our guests were all there in good season, so that there was time to enjoy



Mr. Creed addressed the crowd upon the significance of the latest "Pacific Service" achievement.



R. C. Evans, secretary-manager of the Redding Chamber of Commerce, chairman of the day at Pit 1.

and digest a comfortable lunch before the serious business of the afternoon came to be taken up. At three o'clock a general move was made in the direction of the power-house, where rows of seats to accommodate our visitors had been placed from the doors to within a few feet of the first generator. The balcony from which the speakers were to address the crowd and where the ceremony of closing the switch was to take place was becomingly draped for the occasion.

Arrangements had been made to hold the celebrations at either end of the transmission line simultaneously, so in order that the expected signal should find both sides ready it was necessary to observe almost military punctuality. Accordingly, at precisely 3:30 p. m. Chairman R. C. Evans stood out upon the railed platform atop the front generator and presented his address of welcome.

In pleasant, direct terms Mr. Evans told the throng before him just why it had been bidden. Electric power development, he said, was no longer a mere private enterprise, a thing conceived and executed for private exploitation or for private gain; on the contrary, it was the

most public of public things, every development in itself an undertaking that concerned not merely the corporation or band of men responsible for its conception and execution, but concerning the great community at large to whom the benefits to be derived from it were incalculable. Little was really known of the undeveloped resources of northern California; in order, then, to interest the people themselves in an enterprise so closely connected with the public welfare, the civic organizations of northern California had undertaken these twin celebrations in honor of the opening to a wide-spreading section of the state of the mighty power resources of an almost inexhaustible region.

Mr. Evans then introduced Mr. Dudley V. Saelzer, president of the Redding Chamber of Commerce and, also, of the Northern California Counties Association. Mr. Saelzer's address opened with a reference to the hardy pioneers of '49 who within a few miles from where the assemblage stood had crossed the Lassen trail on their way to the wealth that lay within the hills. They, he said, were not the only pioneers whose achievements were worthy



Dudley V. Saelzer, president of the Redding Chamber of Commerce.

of celebration. Surely, none were more deserving than the men who by their courage and initiative had made hydro-electric power a commercial possibility, in the first instance, from small beginnings and had built that power up to become the greatest twentieth century developer.

Mr. Saelzer paid a compliment to "Pacific Service" as a great public enterprise. He reminded his hearers that our organization was not made up of a few capitalists but of an army of small stockholders, so that it was a public and not a capitalistic affair. Now was the time, he declared, to bring raw material to California, where available power at an available price was at the disposal of the manufacturer as well as the agriculturist. With the development of the great natural

resources of our state must come unbounded prosperity.

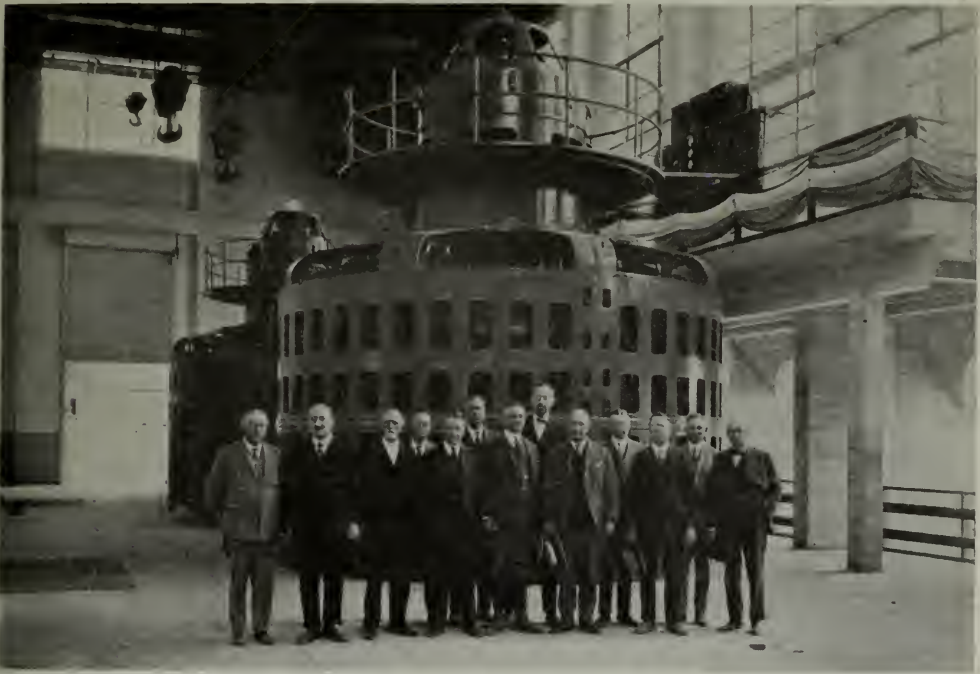
Then came Mr. Creed, presented by Mr. Evans and acclaimed with rousing cheers. Our company's president took from the previous speaker's address what he termed one big note, namely, the note of co-operation. This great power undertaking Mr. Creed declared to represent the collective co-operative effort of a great corporation with the spirit of service and the experience of thirty years behind it. The public nature of our enterprise, he said, stood revealed in the figures that showed 23,000 individual persons as owners of stock of "Pacific Service" and 35,000 as its bondholders. The record showed, too, that since January 1, 5,000 persons had invested in our stock. Could

this, asked Mr. Creed, be described as anything else than public ownership? For these investments represented contribution by the public to an advance in the industrial progress of California. All classes were represented, high and low, rich and poor, men and women.

Mr. Creed went back to the beginning of hydro-electric power development in California, just twenty-seven years ago, and he pointed to where the pioneer of it all, Mr. John Martin, builder of Yuba power-house in 1895, occupied a frontseat in the audience. Tears stood in good John Martin's eyes as he rose and bowed in acknowledgment of the applause that greeted his name. Speaking specifically of the present, Mr. Creed reminded his audience that in its contribution to the industrial wealth of California the estimated output from the entire Pit river development, when completed to the last unit, of three billion kilowatts per annum



Miss Isabel Creed ready to close the switch.



Prominent figures at the opening ceremonies. Reading left to right, these are: A. G. Wishon, John Martin, H. H. Noble, A. H. Markwart, W. E. Creed, O. W. Peterson, President David P. Barrows of the University of California, W. S. Murray of New York, P. M. Downing, John S. Drum, W. N. White, E. H. Steele, James Martin.

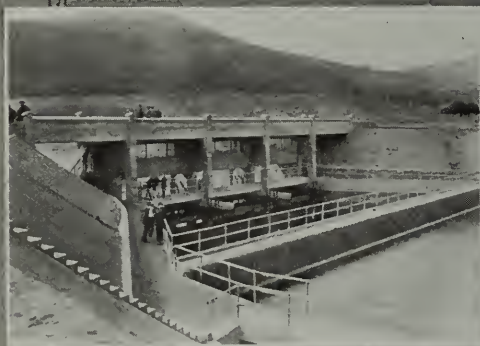
represented the labor of ten million men, and at a cost of two cents per day per man! No wonder the outlook for the future was a golden one. It was important, too, to realize that since July, 1920, more power development had been put under way than during the entire history of the country. Nor was the end in sight. North of a line drawn across the state from Salinas to Merced there was some seven to nine million potential horsepower. That told the story. The writing of it would be for the future.

Mr. Creed's address was supplemented by one from Mr. W. N. White, chief engineer of the Allis-Chalmers Company of Milwaukee, which company had supplied the generators and turbine equipment for the power-house. Mr. White paid tribute to the American workman, declaring his belief that he had greater horsepower behind him than the workman of any other nation. Mr. White prophesied that with-

in fifty years the potential development of fifteen million horsepower in this country would be realized and made use of as against the nine million that stood as the record of present-day development.

Following this address Mr. Creed's charming young daughter, Miss Isabel, was presented by Mr. Evans and, the hour for the agreed-upon signal being at hand, took up her position at the switch. Two wires of the big transmission line had been called into requisition for telephone purposes, and it took but a moment for Mr. Creed to get in touch with Mr. Britton at the other end of the line. It was all very brief.

"Are you ready, Mr. Britton, to add Pit river power to the greatest interconnected distributing system in the world?" asked Mr. Creed. The next instant Mr. Britton's affirmative answer was announced, and then, at the given signal, Miss Isabel Creed closed the



Views on the Fall river side of the development. These show, in order, the head-gates and highway bridge, the diversion dam, and the intake canal leading to the tunnel portal.

switch and the first of the two great generators began to revolve as water from the penstocks flowed into the turbine, through it and out into the tail-race. Pit No. 1 plant was in operation.

During the balance of the afternoon our visitors separated into groups, many of them going over the power-house and having its intricacies of operation explained to them by our engineers. Then followed a substantial supper served to upwards of 500 people, after which the crowd gathered around the bandstand under the stars where, warmed by a handy bonfire, they enjoyed a symposium of speech-making in honor of the occasion.

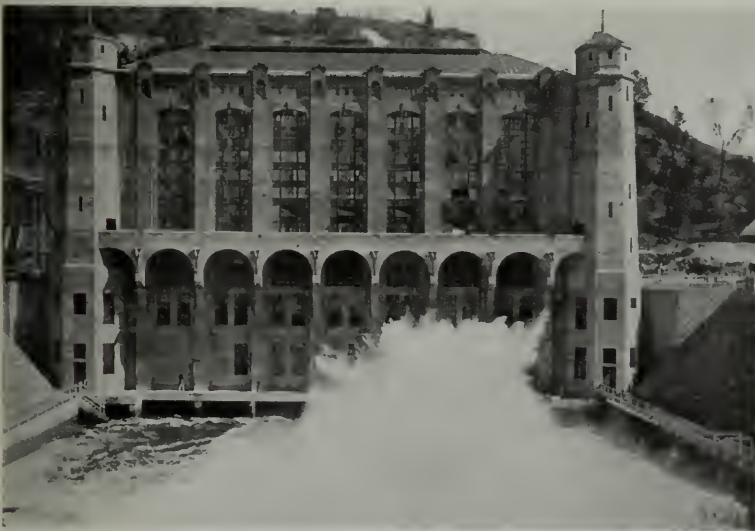
Mr. L. C. Taylor, banker of Redding, presided at this. Among those who addressed the audience were Messrs. J. C.

Brown of Cottonwood, vice-president of the Five Counties Association; A. M. Lawrence of the *San Francisco Journal*; Allison Ware, former Normal School principal and now practising attorney of Chico; John R. Freeman of Providence, R. I., president of the American Society of Civil Engineers; Robert Newton Lynch, manager of the San Francisco Chamber of Commerce; and President David P. Barrows of the University of

California. All spoke in highest terms of the achievement they were gathered there to see. Mr. Freeman, a man of world-wide experience, compared hydro-electric developments east and west, very much to the advantage of the west both in extent as well as economy of operation. Dr.



The surge-chamber spilling over.



After the ceremonies. Treating the crowd to a spectacular display of water force.

Barrows rose from his place in the audience and highly complimented our company upon the 'splendid service it was rendering to the state of California. More than one speaker touched upon the political conditions that were confronting the people of the state at the present time. In the course of his address Mr. Lynch observed:

"The release of 100,000 horsepower marks a great epoch in the development of California. Its influence on human interest can hardly be imagined. This marvelous engineering achievement is eloquent of the fact that California possesses the greatest group of hydro-electric engineers in the world and the most progressive and efficient public utility in the United States.

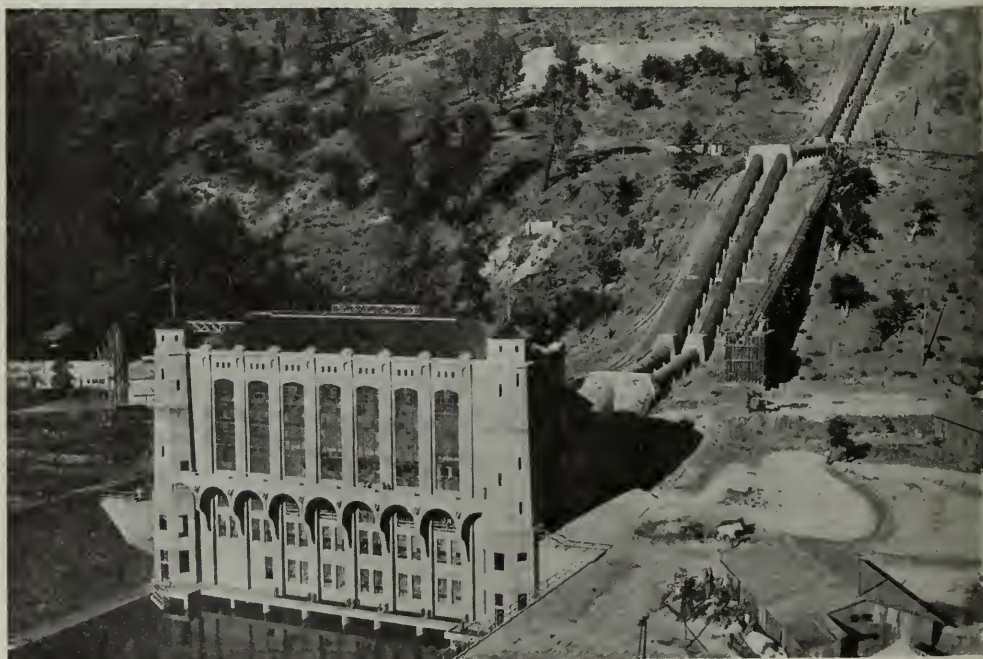
"It is the height of folly for this state, under these circumstances, to propose seriously any change which would discredit private initiative and the availment of the great technical skill which has been organized for the consummation of this great event and all that it promises for the future."

Mr. Ware in his address spoke of a

revival of the civilization of ancient Greece and of an economic and social growth such as no other nation in the world could offer its people. Then he warned his hearers against demagogues and soft-spoken theorists and "public affairs lunatics," who, if they had their way, would take from us "the advantage that we now have, namely, that we have yoked together the initiative, thrift and enterprise of individuals working for themselves and under such proper regulation as insures for every one of us a maximum of service from the products of their genius and their toil."

Sleep was sound under the stars that night. The next morning our visitors were taken over to the Fall river valley side and to Burney Falls and other points of interest. Lunch was served at midday and in the early afternoon the Pit river special chugged its way out of camp, while during the remainder of the day hill and canyon reverberated with the echoes of sounding horns.

FREDERICK S. MYRTLE.



A comprehensive view of the power-house and penstocks.

Thousands Participate in Great Celebration as the Power of the Pit is Received at Vaca-Dixon Substation

A typical California September day, with a coolness that had come with the night tempering the warm rays of the sun. Light fleecy clouds, threatening showers which happily did not materialize, scudded before a gentle wind, plunging the Sacramento valley into alternate moments of sunshine and shadow.

Very early in the morning the little cities of Vacaville and Dixon were all astir. Banners and flags stretching across the streets, gaily decorated store fronts and shop windows, automobiles festooned with colored bunting and bedecked with garlands of flowers, gave evidence that a day of celebration was at hand. Scarcely had the first rays of the sun crept down over the hills than the caravan began to move. They came from the surrounding country for miles around, some in high-powered cars, some in humble flivvers, some by horse and some afoot. All through the morning the pilgrimage continued until by noon

the streets were thronged with hundreds, eager for the festival to begin. Stretched across the intersection of the two principal streets of Vacaville was a huge banner with the inscription: "Opening Celebration. Vacaville will be there."

And Vacaville was there! At two o'clock the parade began to form on East Main street. Slowly the crowd disappeared from the streets as the people sought their respective cars for the four-mile drive to the scene of the ceremonies.

Out at the substation everything was in readiness. Inside the building, spotlessly clean and cool and filled with the odor of freshly poured concrete, the operating force gathered about the big switchboard and somewhat nervously paced about, waiting for the appointed hour to come. At the mess hall, smoke ascending from the chimney proclaimed great activity within where the chef and his corps of assistants were busily engaged in prepar-



Vacaville was en fete for the ceremony

ing the evening's refreshments for the expected crowd.

At three o'clock a shout from the watchers drew attention to a dust cloud far down the road that proclaimed the cavalcade's approach. Traffic on the highway was halted as the three-mile-long parade swept along and swung into the station grounds.

First came "The Spirit of 1922," the stars and stripes borne by one of

The parade swung around the elliptical concourse and assembled before the substation building, where the Vacaville contingent merged with another vast throng that had assembled from Dixon, Sacramento and all central California. Between five and six thousand people greeted Mr. A. S. Dudley, secretary-manager of the Sacramento Chamber of Commerce, as he mounted the steps of the building to address them.



Parade entering substation grounds.

Uncle Sam's bluejackets and escorted by an infantryman and a member of the Marine Corps. Behind them marched the Dixon brass band, rendering stirring martial music. Then came the Vacaville City Council and the speakers of the day, Mr. Dudley, Mr. Virden and Mr. Britton, followed by the descendants of the Vaca family, among them Mr. Jose Miguel Vaca, son of Juan M. Vaca, original holder of the old Spanish grant. Followed scores of beautifully decorated floats and then the people of the valley (all of them, it seemed) in gaily bedecked automobiles.

"This afternoon," said Mr. Dudley, "we are gathered here to celebrate the opening of a great plant and the fulfillment of the plans of a great industry. It is not my purpose to merely extend to you, as citizens of California, a welcome, but rather to extend a welcome to the great industry whose plant we are here today to celebrate. I want you to know that the people of the Sacramento valley do appreciate the industry and the vision of the Pacific Gas and Electric Company." Mr. Dudley then introduced Mr. Charles E. Virden, president of the Sacramento Chamber of Commerce and head of the

Virden Packing Corporation, who spoke on the part the new development will play in California's civic and industrial development. He traced the development of hydro-electric power from the time of its inception in the little power-house at Folsom in 1895 to the stupendous achievements of today. "The P. G. & E.," said Mr. Virden in closing, "is glad to be with you and to observe the great concourse of people gathered here to witness the celebration. A burglar would do well in Vacaville and Dixon today. He would get everything in town, because everyone is here; no one has stayed at home. We are glad to be present with the representatives of the Pacific Gas and Electric Company, because we feel that we are partners in their ideas and partners in the execution of their projects."

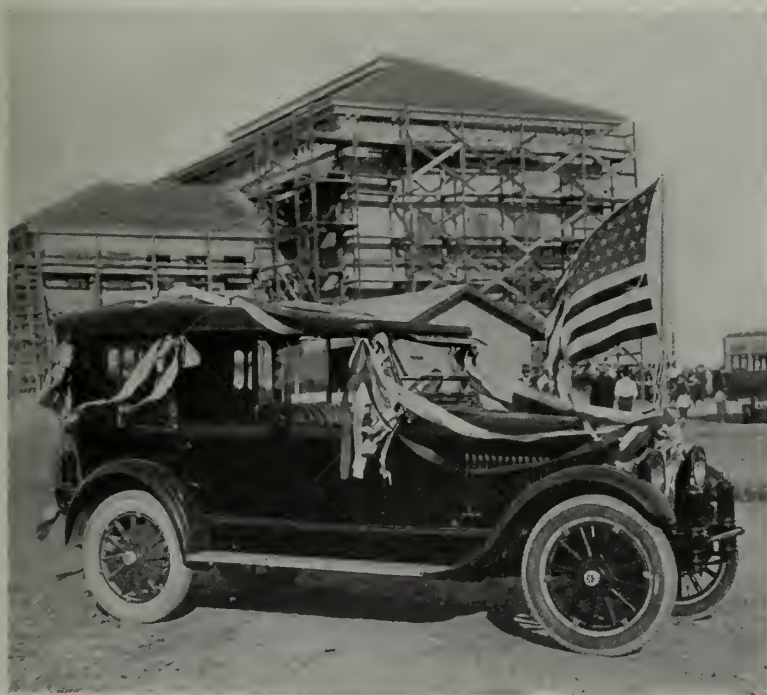
Mr. John A. Britton, responding to Mr. Virden's remarks on behalf of the company, paid tribute to those who have carried the great work to a successful com-



A. S. Dudley, secretary-manager of the Sacramento Chamber of Commerce, was chairman of the day at the substation.

pletion. "I am proud today," said Mr. Britton, "of the accomplishments of the company I represent, and I am proud of the accomplishments of the men who have been working for this development.

I appreciate, as perhaps few of us are in a position to appreciate, the hardships endured by the men on the firing line. The men who did this work are the modest men in the background, men in the offices, men in the field—the men who conceived the idea that is today being carried into execution. They are the men behind the scenes, my boys that have been with



Mr. Britton's car decorated for the occasion.

me all these years, and whom I have loved so much.

"I have watched the advance and development of this great company in the past fifty years. Today you stand at the opening of a new era. Today electricity is accomplishing that which twenty years ago would not have been deemed possible of accomplishment. No better tribute could be paid to the company, no men could receive a better compliment, than to have you gathered here today in this gala celebration, and I wish to express my sincere appreciation of the splendid things that the people of Vacaville and Dixon and the surrounding country have done today, and the spirit of co-operation, the outpouring of spirit, here manifested.

"At no place on the face of the globe is there a station comparable to this one. At no place on the face of the globe is there a power-house comparable to Pit River Plant Number One, very soon

to go into service. When the lightning from the waters of the Pit is flashed across the great copper cables, never again will there be any shortage of power for the industries, the farms or the homes of California.

"From 1895 down through the twenty-seven years since that time, it has been the initiative, the genius and the courage of the men of California which have made this development possible, culminating in this present grand accomplishment. Today, with comparatively only a handful of men and women in California, it has set a pace in electrical science, in industry and in agricultural development, that will cause the entire world to sit up and take notice. This electrical development is one of the most potent factors in the state's growth and prosperity. Homes are going to be developed where now there are vast acreages of vacant land. In the next twenty years we shall have ten



Mr. Britton introducing Phil Kurtz. Mr. Virden in the background.

millions of people in California, and in this great empire of the West there will still be ample room for forty millions more.

"Once more let me express on behalf of my associates my thanks to you for this splendid turnout today. You are all deserving of the best there is on this earth,

Pacific Gas and Electric Company." "And here," said Mr. Britton, "is Joe Jollyman, the electrical wizard who has helped to make this great development a possibility." "While here," he continued, forcing the reluctant Phil Kurtz before the crowd, "is the man who actually built the substation." All received cordial greeting.

The time was now at hand for the power of the Pit to come coursing over the tower line. An expectant hush fell over the crowd as Mr. Britton called Pit power-house on the phone and Mr. Creed responded. "I want you to know, Mr. Creed," said he, "that before me are congregated between five and six thousand people who



"Are you ready, Mr. Creed?"

and we wish to each of you individually, and to all the people of this great territory, the fullest measure of happiness and prosperity."

Two little schoolgirls of Vacaville presented Mr. Britton with two large baskets of flowers. In expressing his thanks for the offering he stated that it was accepted on behalf of the men on the firing line, and affectionately introduced three of "his boys." Mr. Fred George, who had been rather nervously hovering in the background, was drawn forth and presented as "the man who actually runs the 29 hydro-electric plants, the 4 steam plants and the 238 substations of the

have assembled in celebration of an occasion which will mean greater prosperity for the state of California than ever before."

Mr. Creed, his voice from two hundred miles away made audible by magnavox, replied that another throng filled the interior of the great power-house.

"Are you ready, Mr. Creed?" asked Mr. Britton.

"Ready," replied Mr. Creed; "the water is coming."

For a moment the silence was intense. Then a faint humming sound within the substation announced that the power was beginning to come in. Steadily the

sound grew in volume as every eye focused on the flagstaff with the flag hanging limp and lifeless at its base. To the ropes of the banner was attached an electric motor so connected that when the power was received the flag would rise. The machinery in the substation suddenly

"This means," said Mr. Britton, "that it is just possible that a kilowatt of electric energy generated by the falling waters of that northern river may at this very moment be adding its quota to turning the motor of some irrigation pump that is reclaiming a barren waste in old Mexico, a thousand miles away."



After the power had come in. Crowd joining in the singing of the national anthem.

sounded a high-pitched roar, the flag crept slowly upward, half hesitated, and then, as fifty childish voices shrilled "The Star-Spangled Banner," it mounted swiftly to the top and flung its starry folds bravely to the breeze. With uncovered heads the multitude joined in the singing of the anthem, to which the droning machinery within the station contributed its deep melodious diapason.

The needle of the synchroscope, mounted on the speakers' stand, swung wildly back and forth for a while from "slow" to "fast," while the lights waxed alternately dim and bright. Then at 4:42, just seven minutes after the power had been received, the needle rested firm and the Pit river power was in synchronism with the entire system.

in exploration of the big station, where its mysteries were explained by the company's engineers, refreshments were sought. Lunch was served in cafeteria style, every one helping himself to the great array of delectable dishes that had been prepared. Long tables, erected in the open, served as the banquet hall. Over five thousand were served. Then as the cool of the evening fell down, music, entertainment and dancing began, which continued until midnight.

It remains only to say that since these ceremonies were held it has been decided to give the name of Vaca-Dixon to the great substation which receives and distributes the power from the Pit.

H. S. FURLONG.

There came then to everyone the realization that the great feat was over, that the gigantic experiment had proved an unqualified success. And all assembled there, "PacificService" men and visitors alike, were proud of the accomplishment.

Gas Men of the Pacific Coast Break Records at Santa Barbara

By WILLIAM M. HENDERSON, Secretary, Pacific Coast Gas Association.

Gas men of the Pacific Coast, 215 strong, hailing from as far as British Columbia on the north, San Diego on the south and far-away Hawaii to the west, gathered together at Santa Barbara last month and made history for the gas industry of the West. Not only in point of attendance was this, the twenty-ninth, annual convention the greatest on record, but in enthusiasm displayed, in the scope and thoroughness of the papers presented and in general accomplishment for the industry as a whole, this convention may be entered in the minutes of the Association as the best ever.

The year's activities have been conducted under the administration of President Henry Bostwick, than whom the Association has known no more conscientious worker. With the retirement from the presidency this year Mr. Bostwick rounds out his tenth consecutive year of administrative work, having served eight years as secretary, one year as vice-president and another year as the Association's chief executive.

The first session was called to order at convention headquarters, the Hotel Arlington, on September 19. Mayor James

E. Sloan of Santa Barbara officially welcomed the delegates, bidding them avail themselves of the hospitality of Santa Barbara and extending to them the key to the city. Mayor Sloan, himself a public utility man for the past thirty-seven years, spoke of his appreciation of the problems confronting the gas men of the Pacific Coast. He cited many incidents touching on the growth of his city and the state and told of the coming of the utilities and what they had accomplished for California. C. B. Babcock, a past president of the Association, responded to the mayor's address of welcome.

A feature of the opening session was the distinction of an honorary membership conferred on Mr. E. C. Jones, one of the founders of the Association and always an active worker in the cause. The distinction of honorary membership has been conferred upon but five men in the twenty-nine years of the Association's life, among them Dr. Benjamin Ide Wheeler, president emeritus of the University of California. Mr. Jones was present at the session, and gracefully acknowledged the honor bestowed upon him.

President Bostwick's address reviewed



Founders of the Pacific Coast Gas Association.
From a photograph taken in 1893.

the condition of the industry at present and the prospects for its future. It touched on the wonderful growth that the Pacific Coast gas companies had experienced during the year and stated that additional generating capacity, now completed or contracted for, will place the gas companies in a position to meet all demands for some time to come. He spoke of the great natural gas development of Southern California and stated that ten million cubic feet of gas is coming daily from Santa Fe Springs, and that more than forty million daily was being produced at Long Beach, but drew particular attention to the serious situation brought about by over drilling in the fields adjacent to Los Angeles, where, on account of the greed of the landowners and drilling companies, a very rich field seems doomed to rapid exhaustion.

Mr. Bostwick called attention to the extension of distribution systems which has greatly benefited rural communities, furnishing to suburban populations the same service rendered in the large cities, due to the development of high-pressure transmission and distribution systems.

He praised the coast companies for their successful stock selling campaigns and the customer-owner plan of financing. This, he said, is one of the most constructive means whereby a favorable public sentiment can be built up on behalf of the utilities. He recommended the appointment of a committee on consumer-ownership to afford a general exchange of ideas with a view of the adoption of the plan by all gas companies.

The program scheduled the meeting of the auditors and accountants for 2 p. m., on Tuesday. Chairman O. L. Moore, who presided, was on hand well in advance, with all the properties necessary for his show, including the actors. The cast he had booked for the occasion included: (1) Co-operation with the accounting department, by B. G. Williams, mechanical engineer, Southern California Gas Co., Los Angeles; (2) Budgetary Control—Committee Report, by chairman C. W. Platt, assistant secretary-treasurer Portland Gas and Coke Co., Portland, Oregon; and (3) Appliance Accounting, by H. Glover, auditor Beacon Light Company, Los Angeles.

Co-operation with the accounting department has heretofore been considered as a myth, but when B. G. Williams analyzed the situation and presented it, it was not difficult to see the possibilities of co-ordinating the work of all departments. Listeners-in on the discussion certainly profited by it, and the occasional repetition of this or an allied subject will accomplish much.

Budgetary control as a policy is the only proper method for management to conduct its business, but as a subject it promoted considerable discussion. Operating men evidently have a horror of planning their requirements in advance; nevertheless it must be apparent to all that eventually the practice of control by budget will be in vogue all down the line. Mr. Platt advanced a new thought to many and a sound thought for all and it will profit anyone to study further on this subject and to read and digest the paper.

The appliance men were given a hearing as a part of the Accounting Committee program. The paper on appliance accounting dealt with the subject of keeping cases on sales in appliance stores and suggested a method for receiving and inventorying stock. Discussion on this subject developed some difference of opinion and created considerable interest.

The appliance display was in all respects a most creditable showing and the Exhibit Committee, of which C. B. Babcock was chairman, was the recipient of unlimited praise for the result of its efforts. There were thirty-six exhibitors, with appliances dealing with every phase of the industry. The basement or club-room of the hotel was taken over as the exhibit room with every inch of available space utilized.

The Wednesday morning session opened with Chairman E. L. Hall of the Technical Committee presiding. This day of the convention is usually looked upon as the main event, inasmuch as a majority of the members are interested in this angle of the industry. Chairman Hall did not disappoint the membership in any respect, for his program was complete. The committee papers were of a decidedly high order, consisting of reports on such subjects as electrolysis, consumers' meters, naphthalene removal, unaccounted-for gas, works connections, appliance testing code and gas generator design.

The code reproducing the proper procedure for testing appliances is a welcome contribution to the Association, its members and the gas industry at large. It is a ready hand-book on practice to follow in order to test gas-burning appliances and will prove a valuable asset to all men engaged in the development of gas sales. This report was prepared under the direction of R. M. Conner as chairman and to him credit is due for the very excellent work performed.

Three good papers were presented on subjects that are of immediate interest to the industry. First the subject of distribution was handled by Arthur F. Bridge in a paper, "A Study of the Load Problem for Gas Utilities." This dealt primarily with the situation that confronts the natural gas distributing companies and reviewed the situation in southern California and the experiences that the companies have had during the past few years. A very interesting description of a high-pressure storage holder is contained in the paper. This gas holder is now in service near Los Angeles, storing high pressure gas. It serves the same function as a holder storing low-pressure gas, operating somewhat on the same design though the principle and construction are different.

The subject of gas meters, under the title of "The Behavior of Consumers' Meters in Service," was presented by E. W. Hammond. This may seem an old stand-by subject, but when it is appreciated that the meter is the "cash register" of the industry it will be better understood why the subject is continually brought forth. Gas men must realize that if they are to keep their business in order they must maintain accuracy and promote confidence in gas meters. The report of the gas meter committee coupled with this paper spread the subject properly on the record and by such repetition it will eventually be accepted as the gas man's gospel.

The question of liquid purification is one that is attracting considerable attention from plant engineers. Mr. F. W. Sperr, Jr., chief chemist of the Koppers Company, prepared a paper that was read by Mr. W. S. Yard. Mr. Yard is well qualified to discuss the subject as under his supervision five purification plants are now being installed by "Pacific Service." The method of removing the sulphur content of the gas by the use of sodium carbonate was well treated in the article, experiences being quoted and plant construction and operation well described.

The conclusion of the technical day program was given over to the reading of the report of the Joint Committee on the Efficiency and Economy of Gas. This committee, in conjunction with the engineers of the California Railroad Commission, have carried on an extensive field study of the subject. They have gathered data and conducted experiments that permit them to arrive at a conclusion. In submitting his report Chairman Ready made the statement that it was limited to California oil gas manufacturing



Retiring President Henry Bostwick

conditions and not therefore universal in its application. In brief the report stated that in fixing a standard of gas quality applicable to all California manufactured gas, the fundamental object to be achieved is to supply gas which will make possible the best service to the consumer at the lowest cost. In recommending a nominal standard it is to be borne in mind that this should not be required in any case where it can be shown that a higher or lower quality will give the consumer more heat units per \$1.00 at equal or better uniformity of service. The report further stated that, considering the problem of oil gas manufacture, distribution and utilization as practised in California, a standard of 550 B. T. U. per cubic foot is more advisable than the present 570 B. T. U. standard.

Thursday morning session opened with

R. E. Fisher as chairman of the day. Under the direction of Mr. Fisher as chairman of the Commercial Committee an exceptional and original program had been prepared. All papers presented were by men outside of direct connection with the industry, although indirectly each had a decided interest in its welfare. It was a step in the right direction and henceforth it is hoped that each year some outsider will be brought in to read to us his message and inspire us with his ideas.

Irving H. Rice, president of the Merchants and Manufacturers Association of Los Angeles, spoke on "The Value of Good Will to the Utility." Guy Kinsley of Cyrus Peirce and Company read a paper on "Investment Securities and Their Relation to the Gas Company." Such a theme could not be better chosen for presentation at this time. K. L. Hamman of the Johnston-Ayres Company, presented a full discussion of the subject "Commercial Advertising of Gas," and J. O. Smith, manager of the Birch-Smith Furniture Company, delivered an address on "Merchandising of Appliances by Retail Dealers."

These four papers represent the high-water mark of any individual session of a committee program presented at a convention. A review of them is not practicable, for to attempt to brief them would eliminate much of the good, as the author's style in each case is in itself an inspiration. The titles speak for themselves and men of the industry are urged to accept any opportunity to read again these ably written papers.

Mr. Hugh M. Crawford, "Pacific Service" gas sales manager, concluded the commercial program by a résumé of the commercial activities of the past year, placing in the record the work that is now behind. This serves as a mark for the future and should be adopted as a continuous practice to record the past year's activities in commercial progress of the gas business.

Thursday afternoon saw the conclusion of the business session of the program, some committee reports being held over until then, in order that they might be presented to full attendance.

A feature of this closing session was the report of the Committee on Public Relations, presented by Chairman F. A. Leach.

This took "good will" for its text and presented views and recommendations of sufficiently striking character to call forth serious discussion on the floor of the convention.

The report called attention to an address by N. W. Simpson, of the Missouri Public Service Commission, in which the question of contact with the public was discussed from the viewpoint that a considerable portion of the public served knows the public utility only by reason of business contact with a limited class of employees. To quote: "The viewpoint of this large class of customers toward the utility in general, the likes and dislikes thereof, is predicated almost entirely upon the impression made upon them by this particular class of employees." This idea was amplified in the report to take in the attitude of the employees of one utility toward the employees of another, an attitude based largely on the personal experiences of service. Following this thought the suggestion was made that the public utilities organize a joint committee for the training of, or, at least, for the setting of standards for the training of, all utility employees who come in contact with the public. Consideration of this suggestion was urged upon the incoming administration.

The report commended the work of the Joint Committee on Efficiency and Economy of Gas in establishing heat and measurement standards, thereby gaining the confidence of the public as to the quantity and quality of the commodity delivered. The influence of the price charged for the commodity upon the utility's relations with the public was discussed in the report and the recent reductions in the price of oil were welcomed as helping out the situation, but yet more efficient methods of manufacture and distribution were urged, suggesting some system of reward whereby the return to the company would be increased as the cost to the consumer decreased, as an incentive to activity along this line.

In conclusion the report urged a policy of frankness on the part of the utility, with Service as its modern slogan or watchword.

The report of the Gas Engineering Degree Committee, by Chairman John A. Britton, made some excellent sugges-

tions that will revive interest at the State University in the subject of gas engineering.

The following administration was elected to serve for the ensuing year: President, Franklin S. Wade, Los Angeles; vice-president, H. R. Basford, San Francisco; secretary-treasurer, W. M. Henderson, San Francisco; directors, W. S. Yard, T. P. McCrea, L. M. Klauber, D. J. Young, B. G. Williams, D. H. McCorkle, E. L. Hall. Del Monte was selected for the 1923 convention.

A resolution was unanimously adopted condemning the proposed State Constitutional Amendment No. 19, known as the Water and Power Act.

The banquet was the most successful ever experienced by the Association. President Bostwick presided as toastmaster and injected the necessary jollity into a program that was snappy.

Mr. Wigginton E. Creed, our company's president, sounded the keynote of the occasion with an address on the menace of the so-called Water and Power Act. He touched on the folly of "government in business" and the disastrous effect on state credit of so huge an increase in its public debt, in the face of an utter lack of necessity for such a measure, in view of the remarkable record made by the electrical industry of California. The act

he characterized as an "Unlimited Deficiency Bill," in which neither the legislature nor any other department of the state government would have any power to control or halt the deficiency appropriations. He pointed out that the Water and Power Act would take one billion of dollars off the tax rolls and throw the burden of the taxes thereby lost upon the reduced amount of taxable property remaining on the tax rolls.

"What we need today," said Mr. Creed in conclusion, "is not a reduction but an increase in taxable property, so that we may the more easily bear the tax burden which the war and other causes have placed upon us."

The new president, Franklin S. Wade, following the practice established by Mr. Bostwick at the last convention, appointed his committee chairmen for the coming year. They are: Arrangements, C. B. Babcock; Meetings, H. R. Basford; Accounting, E. W. Hodges; Technical, E. L. Hall; Commercial, H. M. Crawford; Experience, John Clements; Wrinkles, M. R. Thompson; Library, W. M. Henderson; Gas Engineering Degree, John A. Britton; Public Relations, D. J. Young; Publicity, Clyde H. Potter; Membership, Northern, John Keillor; Southern, C. M. Grow; Central, J. E. Kelley.

Accompanying this article on page 149 is a photograph taken on the occasion of the organization of the Pacific Coast Gas Association in July, 1893. Following is a key to the picture.

TOP Left to Right: John Clements, Supt. Red Bluff Gas and Electric Light Co., Red Bluff, Cal.; M. C. Osborn, Supt. Virginia City Gas Co., Virginia City, Nev.; Ph. Meyer, General Agent Welsbach Company, San Francisco, Cal.; Richard Fenner, Asst. Engineer San Francisco Gas Light Co., San Francisco, Cal.; Geo. Thompson, Iron Founder Eureka Foundry, San Francisco, Cal.; John Martin, Agent Pipe Company; C. M. Converse, Supt. Potrero Street, San Francisco Gas Light Co., San Francisco, Cal.; E. P. Grant, Supt., Modesto Gas, Light, Coal & Coke Co., Modesto, Cal.

SECOND ROW Left to Right: C. M. Gregory, Supt. San Jose Light & Power Co., San Jose, Cal.; C. W. Quilty, Pres. San Jose Light & Power Co., San Jose, Cal.; Geo. D. Roper, Salesman Van Wie Gas Stove Co., Rockford, Ill.; W. F. Boardman, Salesman Gas Stoves, San Francisco, Cal.; M. G. Elmore, Cons. Gas Engineer, San Francisco, Cal.; Sam'l Guthrie, Supt. Pacific Gas Improvement Co., San Francisco, Cal.; J. S. Kaneen, Supt. San Rafael Gas & Electric Co., San Rafael, Cal.; Theo. R. Parker, Napa City Gas Light & Heating Co., Napa City, Cal.

THIRD ROW Left to Right: Wm. Dunbar, Gas Contractor, San Francisco, Cal.; S. B. Cushman, Pres. San Rafael Gas & Electric Light Co., San Rafael, Cal.; Henry E. Adams, Asst. Supt. Stockton Gas Light & Heat Co., Stockton, Cal.; W. S. Wharton, Supt. Bellingham Bay Gas Co., Fairhaven, Wash.; A. J. Vanderwhite, Supt. N. Beach Station, San Francisco Gas Light Co., San Francisco, Cal.; J. W. Thomas, Supt. Vallejo Gas Light Co., Vallejo, Cal.; Mr. Eichbaum's Son; John Kempf, Jr. Manager Salt Lake & Ogden Gas & Electric Light Co., Salt Lake; M. Wylie, Supt. Carson City Coal Gas Co., Carson City, Nev.; G. I. Kinney, Supt. San Diego Gas & Electric Light Co., San Diego, Cal.; Mr. Brooks, Agent Pipe Company.

SITTING Left to Right: R. P. Greer, Manager Pacific Ammonia & Chemical Works; J. L. Hallett, Manager Portland Gas & Coke Company, Portland, Ore.; W. G. Barrett, Secy. San Francisco Gas Light Co., San Francisco, Cal.; E. C. Jones, Asst. Engineer San Francisco Gas Light Co., San Francisco, Cal.; J. B. Crockett, Pres. San Francisco Gas Light Co., San Francisco, Cal.; E. H. Eichbaum, Engineer Pacific Gas Improvement Co., San Francisco, Cal.; J. C. Pierson, Supt. Capital Gas Company, Sacramento, Cal.; J. L. Stewart, formerly Pres. United Gas Improvement Co., Philadelphia, Pa.; J. E. Gannon, City Gas Inspector, San Francisco, Cal.; W. H. Toomy.

The Financial Side of "Pacific Service"

IMPROVING BUSINESS CONDITIONS

The steady improvement in general business conditions in the section of California served by the Company is strikingly reflected in the following table showing by months the Company's output of electricity during the first nine months of the current year, compared with the same period of 1921:

SALES OF ELECTRICITY
K. W. H.

MONTH	YEAR 1922	YEAR 1921	INCREASE	
			K. W. H.	PER CENT
January.....	79,503,865	80,414,847	910,982	1.14%*
February.....	77,913,727	75,003,971	2,909,756	3.88%
March.....	77,940,335	73,979,198	3,961,137	5.35%
April.....	80,017,411	78,016,855	2,000,556	2.56%
May.....	87,155,337	84,350,008	2,805,329	3.33%
June.....	101,038,375	93,053,770	7,984,605	8.58%
July.....	103,910,999	93,438,682	10,472,317	11.20%
August.....	108,854,253	97,404,705	11,449,548	11.75%
September.....	106,631,982	92,886,918	13,745,064	14.80%
TOTAL—9 Mos.....	822,966,284	768,548,954	54,417,330	7.08%

*Decrease.

The above showing is particularly satisfactory when it is recalled that, on account of the business depression everywhere prevalent in the first part of 1921, the Company's sales of electricity during the nine months ended September 30, 1921, showed a decrease of 28,660,483 k. w. h.

The increase of 13,745,064 k. w. h. in sales of electricity last month, compared with September, 1921, is unquestionably the most substantial addition in any month in the Company's history. Of this increase, 6,307,216 k. w. h. represents additional energy sold to the manufacturing industry, the increase of 37.97% in this class of service affording especially strong evidence of the revival of this important phase of industrial activity.

Sales of gas during each month of the current year also show uniform increases over last year's figures, as evidenced by the following tabulation:

SALES OF GAS
CUBIC FEET

MONTH	YEAR 1922	YEAR 1921	INCREASE	
			CUBIC FT.	PER CENT
January.....	1,183,577,200	1,119,632,800	63,944,400	5.7%
February.....	1,151,321,900	1,024,810,600	126,511,300	12.34%
March.....	1,064,353,800	1,021,765,700	42,588,100	4.16%
April.....	1,080,833,200	1,001,219,900	79,613,300	7.95%
May.....	975,587,600	939,704,900	35,882,700	3.82%
June.....	956,815,700	940,137,000	16,678,700	1.77%
July.....	883,305,100	822,926,700	60,378,400	7.33%
August.....	874,559,100	830,319,900	44,239,200	5.33%
September.....	948,698,200	906,480,900	42,217,300	4.66%
TOTAL—9 Mos.....	9,119,051,800	8,606,998,400	512,053,400	5.95%

The foregoing figures leave no room for doubt that the Company's sales of gas during 1922 will exceed 12,000,000,000 cubic feet, and it is undoubtedly of interest to our stockholders to know that their Company, in addition to being the second largest producer of hydro-electric energy in America, is also easily among the first half-dozen companies with respect to its sales of artificial gas.

GAIN IN CUSTOMERS

When the Company, during the month of August, made a net addition of 5,575 customers to its distribution lines, this increase established a record for growth which had not even been approached in any single month in the seventeen years of its existence. In the month of September, however, this record was surpassed, 6,084 new customers being added. The net gain during the first nine months of the year aggregated 29,427, bringing the total number of customers served at the end of September, 1922, up to 628,396. This substantial increase in the number of services is undoubtedly largely a reflection of the prevailing building activity. The following tabulation shows the rapid and consistent growth in business in every department of the Company's business for the past thirteen years:

STATEMENT OF CONSUMERS BY DEPARTMENTS, AS OF SEPTEMBER 30TH

YEAR	GAS DEPARTMENT	ELECTRIC DEPARTMENT	WATER DEPARTMENT	STEAM SALES DEPARTMENT	TOTAL	INCREASE EACH YEAR
1909.....	135,120	67,028	6,326	...	208,474	.....
1910.....	147,388	79,933	6,676	...	233,997	25,523
1911.....	161,251	95,514	7,208	34	264,007	30,010
1912.....	190,458	112,079	7,893	185	310,615	46,608
1913.....	203,588	126,554	8,361	252	338,755	28,140
1914.....	216,016	143,134	9,035	313	368,498	29,743
1915.....	226,502	161,441	9,498	362	397,803	29,305
1916.....	229,480	174,422	9,984	390	414,276	16,473
1917.....	239,290	188,950	12,456	427	441,123	26,847
1918.....	250,879	205,335	13,073	447	469,734	28,611
1919.....	264,826	222,514	13,227	425	500,992	31,258
1920.....	281,342	260,356	16,431	429	558,558	57,566
1921.....	292,968	279,392	16,122	446	588,928	30,370
1922.....	309,041	301,714	17,140	501	628,396	39,468
GAIN IN 13 YRS.	173,921	234,686	10,814	501	419,922	419,922

SAN FRANCISCO GAS AND ELECTRIC COMPANY 4½% BONDS
CALLED FOR REDEMPTION

Pursuant to mortgage dated November 1, 1903, of the San Francisco Gas and Electric Company, there were drawn by lot for redemption on November 1, 1922, the numbers of one hundred of that company's General Mortgage Sinking Fund 30-Year 4½% Gold Bonds, as follows:

95	295	591	761	992	1300	1507	1916	2463	2746	2981	3168	3487	3666	3962
127	299	677	769	1040	1301	1521	2086	2480	2754	3000	3205	3490	3678	3988
158	342	681	796	1073	1335	1540	2127	2549	2825	3068	3218	3532	3699	
159	401	686	828	1140	1339	1577	2250	2626	2859	3105	3316	3594	3716	
224	424	699	842	1150	1360	1583	2259	2639	2878	3124	3365	3601	3776	
231	480	708	875	1231	1409	1780	2315	2712	2924	3141	3420	3636	3816	
291	578	716	917	1261	1488	1850	2439	2714	2974	3151	3482	3640	3906	

The bonds bearing the above numbers will be redeemed and paid at 105 and accrued interest on November 1, 1922, or thereafter upon presentation at the office of the Union Trust Company, San Francisco, California. Interest on the bonds so drawn will cease on November 1, 1922.

Pacific Service Magazine

PUBLISHED IN THE INTERESTS OF ALL EMPLOYEES OF THE
PACIFIC GAS AND ELECTRIC COMPANY

JOHN A. BRITTON - - - - - EDITOR-IN-CHIEF
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at 445 Sutter Street, San Francisco

*The Pacific Gas and Electric Company desires
to serve its patrons in the best possible manner.
Any consumer not satisfied with his service
will confer a favor upon the management by
taking the matter up with the district office.*

VOL. XIV. OCTOBER, 1922 No. 5

EDITORIAL

Under the heading "California Should Let Well Enough Alone" *Forbes* Magazine, in its issue of September 30, dealt with political conditions confronting the people of California in a practical, business-like editorial, the import of which may be surmised from the title. As this is a matter of the utmost consequence to the people of the commonwealth in which we live we may be pardoned for reproducing the editorial at this time for the perusal of our readers:

"No voters will be confronted in November with a more important question than the voters of California. They are to vote on a proposed amendment to the state constitution which would authorize the state to borrow \$500,000,000 for hydro-electric purposes. The spending of this colossal sum—approximately seven times the present total indebtedness of the state—would be entrusted to five individuals who would be in a position to do anything and everything they pleased until after another constitutional amendment could be enacted.

"Now, no state in the Union has more capably or more honestly managed hydro-electric enterprises than California. I personally know the heads of the three leading utility corporations, and I have investigated their present operations.

California's utility companies are already thoroughly regulated by a state commission that enjoys the confidence of the public. How the people regard their hydro-electric companies and those running them may be deduced from the fact that the securities of these corporations have been purchased by 150,000 Californians, mostly people of modest means. No dollar can be raised by any utility corporation until sanctioned by the state regulators; hence, there is no room for stock-jobbery or any other financial flim-flamming. The rates charged consumers are so reasonable that the increase in the demand for power has been phenomenal. Not a few industrial enterprises have been influenced to locate in California because of the plentifulness of cheap power.

"Although the majority opinion is that the proposed staggering experiment will be voted down, it is significant that one of the largest insurance companies in American has recently refused to invest in an offering of California hydro-electric securities until after the election. This company feels that the \$500,000,000 leap-in-the-dark might gravely endanger not merely the securities of California's utility corporations, but the whole credit of the state. Were the great majority of Californians up in arms against wholesale robbery by utility corporations, or were the state being kept back by lack of privately supplied capital to furnish adequate hydro-electric power, one could understand the bringing forward of such an amendment to the state constitution. But the facts being as they are, it is not easy to grasp why such a step should even be suggested, and it is still more difficult to reason out how any such proposal can have the remotest chance of being endorsed by sensible citizens."

This editorial comment upon a question so vitally affecting the future of our beloved state is from the pen of one who is today, perhaps, the most widely read writer upon financial topics in the country. Mr. B. C. Forbes is generally known, too, as an independent thinker upon all matters of public enterprise. It certainly cannot be said of him that at any time he has shown favoritism toward the public service corporations; on the contrary, while fair-minded throughout, he has ever been a merciless critic where he has

thought the public interests were not sufficiently safeguarded.

His opinion, therefore, upon this legislative menace to the progress and development of California is of the utmost value at a time when the political issue is clouded by wholesale misrepresentation on the part of those whom Mr. Allison Ware, the noted Californian educator and attorney, referred to recently as "demagogues and soft-spoken theorists and public affairs lunatics."

In connection with the foregoing it might be well at this time to recall to our readers the California record to date for development of the electrical industry under private ownership and initiative. The record was summarized recently in an article headed "What the Electrical Industry Has Done for California" and published in the *California Cultivator*.

In California there has been developed by the power companies the greatest interconnected system of power transmission lines in the world, extending from Eugene, Oregon, on the north to the Mexican border on the south, and also eastward to Tonopah, Nevada, and Yuma, Arizona. These interconnections not only produce large economies through the building up of system load factors and the substitution of water for steam in the generation of power, the benefits of which accrue to the public, but throughout the vast territory covered they make possible better service and the meeting of a shortage of power on any one system out of a surplus that may exist in some other system.

The largest concentrated block of electric power ever available for public use is made possible by this interconnection, which ties together over a million horsepower of hydro-electric generating plants with a total annual output of energy delivered of close to four billion kilowatt hours.

As a matter of fact we have here in California in actual operation the super-power system which the Atlantic seaboard is planning as one of its major projects for the next decade.

In California, under private ownership, there has been developed a universal use of electricity which stands without parallel. In 1920, 83 per cent of the dwelling houses of this state were wired, as against 35 per cent for the United States. The

whole state has been girded with transmission and distribution lines, so that the inhabitants of the rural and sparsely settled districts have at their command electric service on an equal basis with the large cities.

Not only is the service rendered generally at uniform rates as between city and country, but these rates are among the lowest in the world. The average rate per kilowatt hour for power received by the California companies for the year of 1921 was only 1.42 cents, compared with 2.17 cents for the United States. As a result of these conditions the per capita consumption of electricity in California in 1921 was 1,085 kilowatt hours, as against an average for the United States of 372 kilowatt hours.

Perhaps the most notable part of this intensive service has been the development of agricultural uses of power. California has pioneered in the reclamation of arid lands through the use of electricity in pumping water, and the land so reclaimed in this state exceeds that of all the other states combined. In 1920, 1,470,000 acres of California lands were under irrigation by water pumped electrically. In ten years from 1910 over 1,000,000 acres were reclaimed by the agency of electricity. Over 500,000 horsepower of motors are installed in this service, requiring 17 per cent of the total power generated.

Under private initiative there was built in California the first long-distance transmission line, 20 miles at 10,000 volts, from San Antonio to San Bernardino, by the San Antonio Power Company.

Under private initiative in California the world's present record in long-distance transmission was achieved by the Southern Sierras Power Company, 539 miles at 87,000 volts, from Mono County, California, to Yuma, Arizona.

Under private initiative the highest-voltage transmission line in the world has been constructed in California by the Pacific Gas and Electric Company, 202 miles at 220,000 volts, from the Pit river, in Shasta County, to the San Francisco bay region.

All these records, made through private initiative and private ownership, were not accomplished in a day, but are the result of years of experimenting.

OUR "PACIFIC SERVICE" EMPLOYEES ASSOCIATION

F. S. Benson Wins 1922 Tennis Championship

By One of the Defeated

The famous silver loving cup, emblematic of the tennis championship of our "Pacific Service" organization, which has been in competition since 1911, has passed out of the realm of competition, and become the permanent property of Francis F. Benson, who won it this year for the third consecutive time.

This cup has had an interesting history. Back in 1911, long before the creation of the "Pacific Service" Employees' Association, a few tennis enthusiasts, headed by Jack Dodge, Ed Szczepanski, Harry Vensano and Cleve Steele, conceived the idea of holding a tennis tournament open to all employees of the Pacific Gas and Electric Company. A small appropriation was obtained from the company's management, and A. G. Spalding & Company donated the silver cup which has been in competition ever since.

The tournament was made a handicap affair, principally to equalize the tennis ability of Jack Dodge, who stood head and shoulders above the other contestants. However, as usual under such circumstances, the heaviest-handicapped player won, and Dodge chalked up a victory in 1911, and easily repeated in 1912. In 1913 Jack, feeling slightly overconfident, on account of previous victories, loafed on the job and Ralph Parr, a newcomer with the company, nosed him out in the finals. It is rumored on good authority that Jack hated to see the cup go out of competition and did not exert himself to the limit, thinking probably that he would have another oppor-

tunity next year. So it proved, but unfortunately for Jack Dodge new men came to the front and he failed to secure the final victory which at one time was apparently his for the taking. Since that time the cup has been subject to most strenuous competition, no less than four additional names being inscribed on it at various times as winners.

I. C. Steele won in 1914 and again in 1919. He also scored a victory in 1918 which did not count toward permanent possession of the cup, as, owing to the war, a special trophy was awarded and the regular championship cup was not in competition.

Verne Jones won in 1915 after a strenuous five-set battle in which R. A. Monroe won the first and second sets and had a substantial lead in the third. Monroe

won the cup in 1916 and again in 1917.

In 1920 there appeared a new player named Francis S. Benson, who was destined to win three straight victories and obtain permanent possession of the cup with the loss of but one set in the three years of competition. In all his matches Benson has played under the maximum handicap imposed on any player in the tournament and his easy victories over the old-time champions prove conclusively that he is the highest-class tennis player who has yet played in the "Pacific Service" championship.

The twelfth annual handicap singles tournament which decided the final ownership of the cup was held on the Hamilton Playground courts in San



F. S. Benson, whose third successive victory entitles him to permanent possession of the cup.

Francisco, on August 12 and 13, 1922. The competition was very keen, as four two-time winners of the title were on hand,



Jack Dodge, originator of the "Pacific Service" Tournament.

each of whom hoped to secure the coveted third win, with resulting permanent possession of the cup. There were twenty-six entries in the tournament, some of whom registered from points far distant from San Francisco. The handicaps in general served to

equalize the playing ability of the contestants so that close and interesting matches were the rule. Tennis balls and refreshments were provided by the Association and prizes were awarded to the contestants who played in the semi-final and final matches.

The courts were not all that could be desired, being on a public playground, and a brisk wind sweeping through tended to impair the accuracy of the shots of many of the players.

Jack Dodge was the first of the old-time winners to go down to defeat when he succumbed to Clinton deWitt. Jack has played very little tennis since the war, and his opponent, who plays regularly at the Berkeley Tennis Club, proved entirely too fast and accurate. Mr. deWitt, not expecting this victory, had made an engagement for Sunday which prevented his competing further in the tournament and he accordingly defaulted in the third round to Ralph Aver of San Rafael.

The three other previous winners of the cup, namely, Steele, Benson and Monroe, came through to the semi-finals without the loss of a set. In the first half of the semi-finals Monroe defeated Aver in a two-set match which he won by virtue of his superior steadiness, the play otherwise being quite equal. In the other half of the semi-finals Benson defeated Steele, also in straight sets. This match was probably the best of the tournament and not nearly so one-sided as the score would indicate. Steele's service and back-hand shots were working excellently and the rallies were

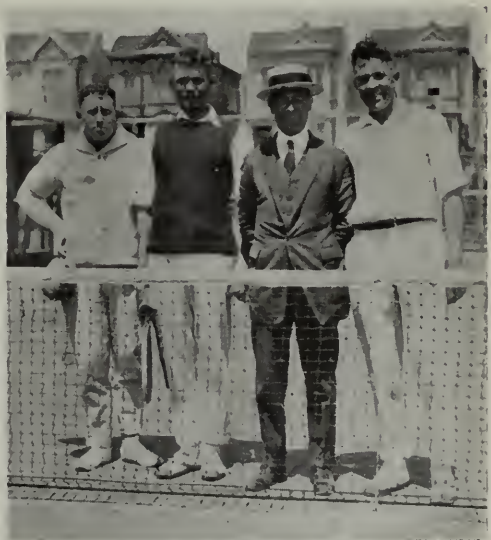
long and spirited, most of the games going to deuce. Benson's steadiness, however, told in the end and he finally emerged the victor.

The final match between Benson and Monroe was adjourned to the California Club courts, where the wind was much less troublesome and the courts were in splendid condition, having been recently resurfaced. The first set was over in a very few minutes, Benson apparently having absolute control of his shots, and his

speed and placements were entirely too much for his opponent. The second set was more closely contested, most of the games being long drawn out and the general standard of the play much above the first set. However, as in his previous matches, Benson soon obtained the upper hand and constantly holding his advantage won the final set, match and tournament, and obtained permanent possession of the cup.



W. C. Allen—a prominent player of twenty years ago.



Four two-time winners.
F. S. Benson, R. A. Monroe, E. E. Dodge and I. C. Steele.

Tidings From Territorial Divisions

East Bay Division

The United States Lighting and Heating Corporation of Niagara Falls, New York, has just purchased two acres in Oakland on Ninety-eighth avenue, Harri-man street and Sunnyside avenue, where it will shortly commence the erection and equipment of a plant for the manufacturing of storage batteries. This corporation is one of the largest manufacturers of batteries in the world, being capitalized at \$4,000,000 and having assets of over \$10,000,000. In addition to its battery business, the company manufactures electric lighting devices for railroad cars, its system being installed in the equipment of more than fifty railroads.

The Easton Orange Juice Company, owned and operated by Messrs. R. P. Easton, W. W. Bluffton and R. G. Laws, has bought property at the southeast corner of Derby and Chapman streets, Oakland, where it has built a factory for the manufacture of pure food drinks, specializing in orange- and lemonades. In the equipment of their plant they have installed the most modern and up-to-date bottle-washing and labeling machinery.

Ground was broken recently for a factory combined with a novel business building, adding another business institution to the growing number in the East Bay Division. The building will be devoted to the manufacture of the Hebern code machine, one of the most ingenious electrical devices ever patented. It is an electrical machine that will permit of the transmission of code messages with absolute secrecy.

On Saturday, September 16, twenty high school students, with Professors J. Petty, W. S. Rue and George Bancroft of the Oakland Technical High School, visited the gas laboratory, accompanied by J. J. Mulgrew of New Business Depart-

ment, East Bay Division. Much interest was taken by pupils and teachers in the display of furnaces for treating metal and in the demonstration by Mr. Pelle.

The Atascadero Doll and Toy Company has moved into its new quarters at 581 Fourth street, with forty-five people on its payroll, owning the exclusive right to manufacture the patent toys known as "Twistums," and is now producing on a large scale to meet the holiday trade.

The American Engraving and Color Plate Company has leased local property where it will install machinery necessary to conduct a first-class combination engraving and electrotype plant. This organization has a national reputation for color plate engraving, furnishing to its clientele intricate color process plates, electrotypes, nickel-types, stereotypes and mats.

The increase in demands for service recorded by the public service corporations in the East Bay cities during the last eight months, shows a splendid volume of growth in these communities. The number of new gas connections totals 3,522, and new light and power connections, 5,391. The increase in connected horsepower amounts to 6,431 as compared with 2,849 for the preceding twelve months, a very large proportion of this increase being attributable to increased industrial activity. In taking care of this increasing demand "Pacific Service" has found it necessary to make large extensions to its distributing systems, more than eight million dollars having been spent in this way since 1919, with the uncompleted work of the present program estimated to cost an additional two and one-half million dollars. New installations of water meters are reported about on a par with the gas and power connections, 5,000 new meters having been placed since the first of the year, and with applications for

service by new customers averaging close to twenty a day. In the number of telephones put into service since the first of the year, the rate of increase in the East Bay cities is exceeded by only one other city on the Pacific Coast—Los Angeles, with a rate a fraction of one per cent higher. The number of telephones per one hundred families has increased here from 48 in 1910 to 71 in 1920. In the matter of savings deposits Oakland ranks far ahead of other Pacific Coast cities with a comparable population. On July 31, this year, the savings accounts in Oakland banks were nearly twice those of Portland and two and a half times those of Seattle. Since 1918 the savings deposits in Oakland banks have increased from \$53,078,729 to \$76,388,000, the increase in the number of depositors being a little over 20,000.

J. C. J.

San Francisco Division

As winter approaches redoubled activity is shown at our industrial gas and heating laboratory and the steadily increasing popularity of gas heating appliances is convincingly shown by the large number of installations that are being made on every hand. During the month of September approximately thirty-five central heating plants were placed in San Francisco homes, including several large Hall, Bryant and Rector systems. As the real heating season does not begin until October, this year promises to eclipse all former records made by this department.

Among the industrial gas-fired steam boilers recently installed are those placed in the factories of the Pacific Gravure Company, California Macaroni Company, Parkside Creamery, California Supply Company, Western Rock Products Company and the Golden Gate Macaroni Company. These installations are giving excellent satisfaction, the owners being particularly well pleased with the automatic control features.

The Scholtz-Mutual Drug Company has opened the first of a contemplated chain of stores throughout the state of California at 801-803 Market street, one

of the best business corners in San Francisco and for many years occupied by S. N. Wood. It is one of the most attractive and best equipped stores in this line. Sites have also been selected and leases signed for locations in Oakland and Los Angeles. Mr. Jeancon, manager of the concern, states that the California company will be operated independently of the Colorado corporation and that the stock of the former will be owned solely by Californians.

An estimate has just been prepared to run a power service to supply the new State Building in the Civic Center on McAllister street between Larkin and Polk streets. There will be a connected load of about 15 kilowatts of alternating current for lighting and approximately 53½ kilowatts of direct current, of which 31 kilowatts will be for elevators and 22½ kilowatts for various motors.

Due to the large demand in the apartment house district it has been necessary to build a new steam feeder line, on which construction is progressing favorably.

Approximately seventeen new services were installed by the steam department during the past month.

The gas output for September showed an average of more than a million a day more than September of last year, the chilly days showing an increase much in excess of the average. All this indicates that a heavy load may be expected this winter, with some high peak days if the weather is cold.

After several years of experimenting and continued efforts, it would seem that the problem of naphthalene complaints at the consumer's services has been solved. The "open season" for these complaints, May to September, is now closed for this year, and the drop in total complaints from consumers this year has been pleasingly large. As compared with 1919, the reduction was forty-six per cent; as compared with 1921, it was thirty-seven per cent. Consistent oil scrubbing by the present method will still further reduce the naphthalene troubles and hold them at a minimum.

A few months ago the Electric Distribution Department of the San Francisco Division, constructed a huge emblem of "Pacific Service" and installed it in the dome of the Civic Auditorium for display at the annual dinner of the P. S. E. A.

This emblem is twenty-five feet in diameter and contains one hundred and fifty lamps. It is identical with the "Pacific Service" insignia in every detail of color and design. Its display at the annual dinner created much favorable comment and admiration. In fact it proved such a magnificent attraction that it was installed at the Vaca-Dixon substation on the opening day of the Pit River Plant No. 1. The emblem has since been returned to San Francisco, where it will be held for other notable occasions.

West Side Division

The Tehama County fair, held in Red Bluff, September 11 to 17 inclusive, was well attended, and in many ways was an improvement on the one held a year ago.

Our "Pacific Service" booth, a modern electric kitchen, captured second prize. We had for demonstrating purposes a super-automatic Hotpoint Hughes electric range, water heater, electric dish washer, and several electric heaters. In addition to these, through the courtesy of the Isko Refrigerating Company, an electrically operated refrigerator was installed and demonstrated by one of their salesmen.

Every day a complete meal, electrically cooked, was served by Mrs. Boyd. The perfection of this food fully proved the many possibilities of electric cooking and helped to make many sales.

Free chances were given on an electric waffle iron, and during the week delicious waffles were served the public. On the last night, a crowd gathered around the booth to see the winning name drawn from the box.

Another display that attracted much attention was the first preferred stock advertisement, showing the increase in the number of stockholders in the county from month to month.

In a separate booth, slides and motion pictures of the Pit river development and other power-houses were shown nightly.

The attendance was good, and much favorable comment was heard.

The Glenn County fair was held in Orland, September 18 to 23 inclusive. Here "Pacific Service" again won second prize with the modern electric kitchen. This fair was on a larger scale than the one held at Red Bluff and naturally attracted larger crowds. Several ranges and water heaters were sold during the two weeks, and prospects are good for many more sales. Our consumers are rapidly becoming converted to the use of electric cooking appliances and heaters.

R. W. M.

San Joaquin Division

Plans have been completed for the construction of the new Stanislaus Country Club House, to be located on the brow of a hill overlooking the Stanislaus river about seven miles from Modesto. The building will provide all the conveniences of a modern country club, and with a rustic finish, stained gray, and a green shingle roof, will fit admirably into the picturesque setting provided by the club grounds. Aside from the erection of the club house, improvements are being started on the golf course, the cost of which will amount to \$7,500. When the course is finished, it will be one of the best nine-hole courses in the state, with grass fairways and grass greens.

The Stanislaus Milk Company has commenced operating its new plant, at which ice cream, butter, cottage cheese, buttermilk, and ice will be produced. The refrigerator will handle twenty-five tons of produce and four tons of ice daily. The building and equipment cost approximately \$35,000, and "Pacific Service" does its bit to the extent of 46½ horsepower.

A large addition to the Hotel Modesto is being rushed to completion as rapidly as possible. The annex will be five stories in height and of steel frame construction, the first of this type of construction to be erected in Modesto. When completed, it will increase the capacity of the Hotel Modesto to 247 guest rooms. The annex

also includes a new dining room which will have a seating capacity of 450 persons and which will be so constructed that it may be divided into separate dining rooms for banquets, conventions, etc. Four stores will be provided along the ground floor. The present building and new annex will give Modesto one of the largest hotels in the San Joaquin valley.

The California Dairy Council's newest dairy map of California, which has just been published, gives much publicity to the fact that Stanislaus County ranks first among the counties of the state in the production of butterfat and butter.

Considerable activity is apparent among the various oil projects in Stanislaus County. The oil drill of the San Joaquin Petroleum Company at Patterson has reached a depth of 1,150 feet and at that level is going through shale which bears every indication of leading to the "real thing," a circumstance which is of course very encouraging to the stockholders.

The Orestimba Oil Company, which is now boring a test oil well southwest of Newman, has started a second test well five miles west of Crow's Landing. The oil indications in the new location have been pronounced very favorable by experts.

The people of Oakdale and vicinity are to be heartily congratulated upon the splendid success of their district fair which was held in Oakdale on September 21, 22 and 23. Upwards of 12,000 visitors attended the fair, and highest praise was heard on all sides for the success of the efforts of those who had the affair in charge. Every available foot of exhibition space was filled, and the color scheme, yellow and orange, together with the diversified tints of the many exhibits, formed a vivid and attractive picture. "Pacific Service" was represented by a model electric kitchen, which was among the most admired booths there. L.J.N.

Fresno Division

When the gates of the fairgrounds closed at midnight on September 30 the greatest county fair that Fresno has ever seen came to a close.

Over a hundred thousand people attended and over a thousand exhibits were on display, aggregating a value of over two million dollars. Turf races, motorcycle races, and the San Joaquin Valley classic speed event, combined with musical concerts, formed a program seldom surpassed by any state fair in the country.

To popularize the raisin for the years 1922 and 1923, an advertising budget of \$2,520,000 has been appropriated by the Sun Maid Raisin Growers Association. The greater bulk of this expenditure will be with national magazines and daily newspapers. A sum of three hundred thousand dollars will be spent on foreign advertising, which brings out the fact that the raisin is to be made known abroad as well as at home.

The marked growth of Fresno can in no way be more readily detected than in her building permits, which, with the close of the month of September, totaled thus far this year nearly five million dollars. Among the recent large buildings under way is that of the San Joaquin Light and Power Corporation, a modern ten-story electrically equipped office building for which ground has been broken and excavation well started.

"Pacific Service" is valiantly carrying on in the march of Fresno's prosperity. Main extensions and new services are being run daily and not alone are we meeting the needs of new business, but the Sales department is day by day building up the consumption on service and meters that have already been installed. Worthy of note is the increasing popularity of the gas-fired basement furnace and steam boiler, numerous jobs of which have recently been completed.

To prove our claim to not alone prompt and efficient service, but to a just charge for the commodity we sell, we quote the following letter, written on the reverse side of a statement of an average bill:

"Gentlemen: In the twenty years or more we have been using gas we have never had a just complaint and find invoice due on reverse side reasonable. Thanking you, I remain
A. H. Strohn."

E. W. K.

North Bay Division

The Western Die Casting Company of Berkeley is rapidly completing its new factory at Vallejo, where it will manufacture the Winslow carburetor. The initial installation will be ten casting machines, gas heated, with an estimated capacity of 2,500 cubic feet per hour.

During the past two months the Gas Sales department has been conducting tests of the private plant at the Napa state hospital with a view of determining the cost of the gas manufactured there. As a result of these tests, and on the report submitted, the governing board decided to enter into a contract with our company to supply gas and to shut down the local plant.

The requirements of the hospital have outgrown the capacity of the plant, which was turning out between 5,000 and 10,000 feet per day.

Bids are being advertised for, and as soon as the contracts are executed the main will be extended about $1\frac{1}{2}$ miles from Napa to the hospital.

Interest in electric cooking has been stimulated by a series of demonstrations given throughout the division.

At Benicia a four-day demonstration was held, during which time an electric-cooked dinner was served to eighty members of the Benicia Chamber of Commerce. Cooking demonstrations combined with music and radio were put on at Napa, Santa Rosa, Sausalito, Mill Valley and San Rafael, and during the Egg Show and Fair at Petaluma "Pacific Service" entertained at a model electric kitchen.

The following is from the Petaluma *Courier* of September 26:

CAPACITY HOUSE GREET'S "ELECTRICAL EVENING"

The story of "Pacific Service" was told at the Hill Opera house last night in a highly interesting, instructive and convincing manner.

When the curtain rose at 8:15, practically every available seat was taken, both

in the main auditorium and the gallery.

The exhibition began with a reel of moving pictures, descriptive of the various uses of electricity.

Immediately after the pictures, Captain George E. Baldwin delivered an illustrated lecture on the hydro-electric achievements of the Pacific Gas and Electric Company.

It was a wonderful message and although the greater part of an hour was consumed in its delivery, the entire audience was all interest and attention to its close.

A beautiful profile map of California, depicting the locations of the various towns, power-houses and transmission lines, indicated by miniature light globes of special colors, was used by the speaker to illustrate the constructive progress of the company throughout its whole history of development.

Keeping pace with the speaker's story and the progress indicated on the map, appropriate slides were projected on the screen, showing each particular building or piece of work under discussion.

The vast audience was manifestly surprised at the magnitude of the undertakings and accomplishments described. Captain Baldwin told his story in a plain, business-like manner, refraining from the use of technical phrases. It was evident that he was as pleased to tell it as his hearers were to receive it. Except an occasional pleasantry to illustrate a point, it was the story of a sincere worker, proud of his organization and what it has done. Such addresses and exhibitions are prolific of good to any community.

A better understanding and consequently more appreciation of real public service will result. After the lecture, the audience was entertained by some very dangerous-looking high-voltage stunts, which everybody admired and nobody understood.

It was a big night for "Pacific Service."

The attendance was estimated at 700. Captain Baldwin was assisted by Phil Riter, chief electrician; W. R. Coover, high-frequency wizard, and L. B. Quilier, in charge of transportation. They are a fine bunch of fellows and should meet a hearty welcome wherever they go.

PACIFIC GAS AND ELECTRIC COMPANY

A California Corporation

Managed by Californians

Operated by Californians

"PACIFIC SERVICE" REPRESENTS (AS OF DEC. 31, 1921):

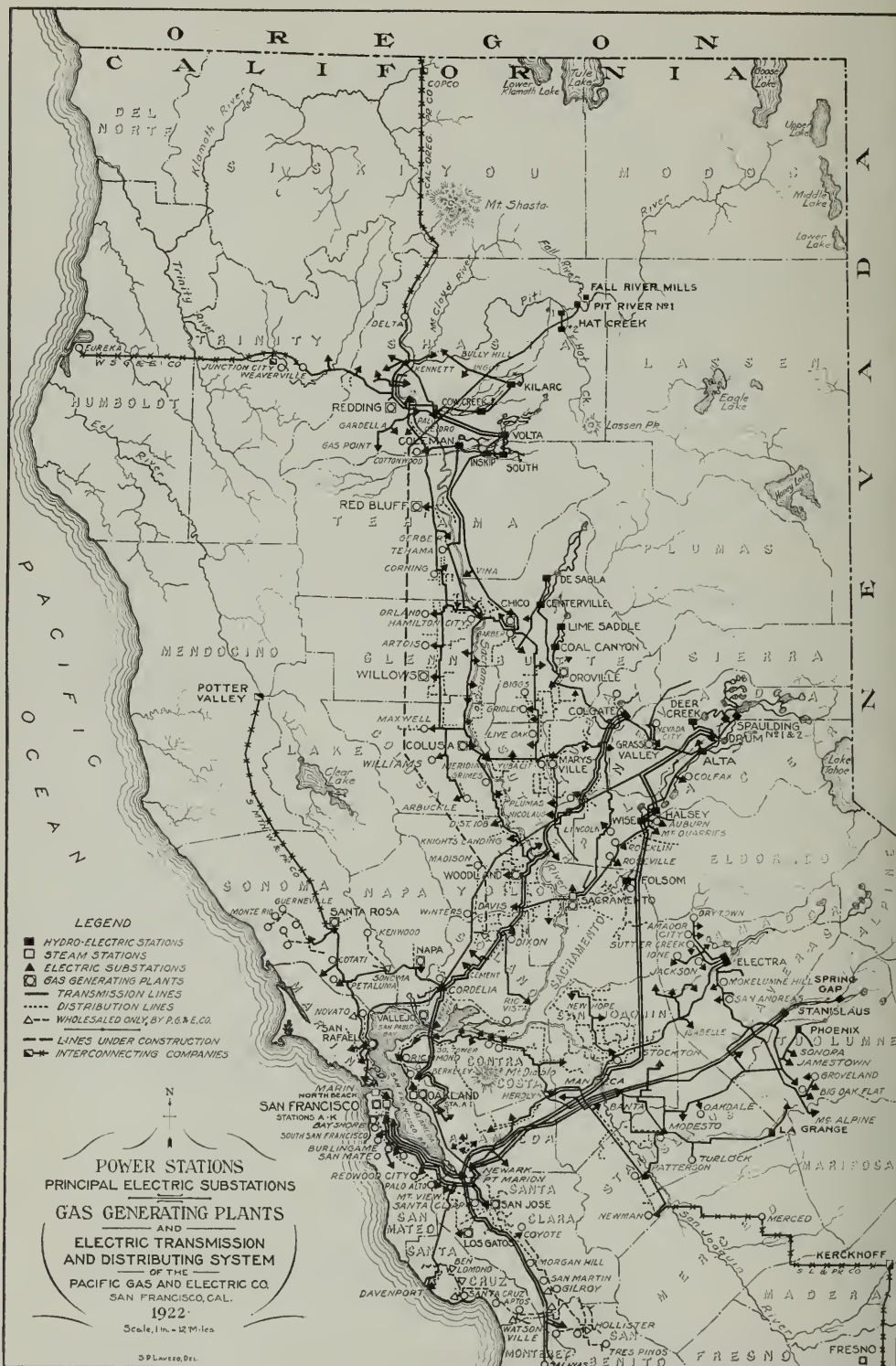
- 8,213 employed in all departments.
- \$183,000,000 capital invested in gas, electricity, railroads and water plants.
- 54,000 square miles of territory in which it operates—an area greater than that of England and Wales.
- 18,204 stockholders, December 31, 1921.
- 36 counties of the State in which it transacts business.
- 599,113 consumers served with gas, electricity, water and steam as of December 31, 1921.
- 1,800,000 people served in 36 counties, which is over 50% of the State population.
- 223 cities and towns in which it supplies service directly and through other companies.
- \$13,205,438 annual wages paid employees in 1921.
- \$2,630,890 taxes, State of California, for 1921.
- \$634,445 taxes, Federal Government, for 1921.
- 308,244 horsepower developed in 28 electric water-power plants.
- 173,592 horsepower developed in 4 electric steam plants.
- 481,836 total horsepower developed in 32 plants.
- 1,021,820,689 K. W. hrs. sold in 1921. This is equivalent to the effort of 3,400,000 men.
- 11,483,551,100 cubic feet of gas sold in 1921.
- 19 gas plants.
- 47,100 miles of wire used in distributing electricity, which could be strung around the world over 1½ times.
- 3,168 miles of mains used in distributing gas, approximately the distance between San Francisco and New York.
- 1,100 miles of mains and ditches used in distributing water.
- 1,300 miles of track of street railways supplied with electric power.
- 64,080,000,000 gallons of water stored in 98 lakes and reservoirs. This amount of water would supply the city of San Francisco at the present rate of consumption for approximately 5 years.
- 93,501 acres of land owned in California—over three times the area of San Francisco.
- 233 parcels of property owned in cities and towns.
- 3,713,717 barrels of California oil used in 1921.
- 149,228 horsepower in agricultural motors depending on "Pacific Service."
- 455,380 horsepower in mining, electric railways, manufacturing and other motors depending on "Pacific Service."
- 52,500 street lamps, gas and electric, lighted by "Pacific Service."
- 5,234,607 incandescent lamps nightly lighted.
- 1,044,217 horsepower connected to system.

PACIFIC GAS AND ELECTRIC COMPANY

Head Office: 445 Sutter Street

San Francisco

Branches in all principal cities and towns of thirty-six counties of North Central California.



Pacific Gas and Electric Company Furnishes
"PACIFIC SERVICE"
 TO OVER 622,000 CONSUMERS OF
GAS, ELECTRICITY, WATER, STREET RAILWAY
 1,715,959 Total Population Served in Thirty-six of California's Counties
 CITIES AND TOWNS SERVED BY COMPANY

	DIRECTLY		INDIRECTLY		TOTAL	
	No.	POPULATION	No.	POPULATION	No.	POPULATION
Electricity.....	170	1,117,541	61	156,411	231	1,273,952
Gas.....	58	1,128,216	2	8,600	60	1,136,816
Water (Domestic).....	18	61,719	8	15,488	26	77,207
Railway.....	1	65,908			1	65,908

Place	Population	Place	Population	Place	Population	Place	Population
Alameda.....	28,306	El Verano.....	400	Meridian.....	200	San Leandro...	5,703
Albany.....	2,462	Emeryville.....	2,390	Millbrae.....	300	San Lorenzo...	500
Alvarado.....	1,000	Escalon.....	600	Mills.....	400	San Martin...	250
Alviso.....	517	Esparto.....	200	Mill Valley....	2,554	San Mateo....	5,979
Amador City...	377	Fairfax.....	250	Milpitas.....	300	San Pablo....	500
Anderson.....	750	Fairfield.....	1,008	Mission San		San Quentin...	3,000
Angel Island...	500	Fair Oaks.....	300	Jojo.....	500	San Rafael...	5,512
Antioch.....	1,936	Fall River Mills	300	Modesto.....	9,241	Santa Clara...	5,220
Aptos.....	300	Farmington...	300	Mokelumne Hill	900	Santa Cruz...	10,917
Arbuckle.....	900	Felton.....	300	Monterey.....	5,479	Santa Rosa...	8,758
Atherton.....	500	Folsom.....	2,000	Morgan Hill...	646	Saratoga.....	500
Auburn.....	2,289	Forestville...	250	Mountain View	1,888	Sausalito....	2,790
Barber.....	500	Fresno.....	45,086	Mt. Eden.....	200	Sebastopol...	1,493
Belmont.....	375	Gilroy.....	2,862	Napa.....	6,757	Shasta.....	200
Belvedere.....	616	Glen Ellen....	1,000	Nevada City....	1,782	Shellville....	200
Benicia.....	2,693	Gonzales.....	500	Newark.....	500	Sheridan.....	250
Ben Lomond....	400	Grass Valley...	4,006	Newcastle.....	750	Smartsville...	300
Berkeley.....	56,036	Gridley.....	1,636	Newman.....	1,251	Soledad.....	400
Biggs.....	683	Grimes.....	500	Niles.....	1,000	Soquel.....	400
Bolinias.....	200	Groveland....	500	Novato.....	400	Sonoma.....	801
Brentwood....	400	Guerneville...	800	Oakdale.....	1,745	Sonora.....	1,684
Broderick....	700	Hamilton City.	250	Oakland.....	216,261	South San	
Burlingame....	4,107	Hammoncton...	500	Oakley.....	200	Francisco....	4,411
Byron.....	350	Hawthorne....	3,487	Occidental....	600	Standard....	500
Campbell.....	600	Hercules.....	373	Orland.....	1,582	Stanford Uni-	
Capitola.....	300	Hillsborough...	931	Oroville.....	3,340	versity.....	2,700
Carmel.....	638	Hollister.....	2,781	Pacheco.....	300	Stockton.....	40,296
Cement.....	1,000	Honcut.....	500	Pacific Grove...	2,974	Suisun.....	769
Centerville....	1,000	Hughson.....	250	Palo Alto.....	5,900	Sunol.....	350
Ceres.....	637	Jone.....	1,000	Paradise.....	500	Sunnyvale...	1,675
Chico.....	9,339	Irvington....	1,000	Patterson.....	694	Sutter City...	250
Colfax.....	573	Jackson.....	1,601	Penn Grove....	200	Sutter Creek...	920
College City...	250	Jamestown....	750	Penryn.....	250	Tehama City...	196
Collinsville...	200	Kennett.....	464	Perkins.....	300	Tiburon.....	400
Colma.....	1,500	Kentfield....	500	Petaluma.....	6,226	Tracy.....	2,450
Columbia.....	200	Kenwood.....	300	Piedmont.....	4,282	Tres Pinos...	300
Colusa.....	1,846	Keswick.....	200	Pike City.....	200	Tuolumne....	1,500
Concord.....	912	King City.....	1,048	Pinole.....	967	Turlock.....	3,394
Cordella.....	300	Knights Ferry.	200	Pittsburg.....	4,715	Vacaville....	1,254
Corning.....	1,449	Knights Land-		Pleasanton....	991	Vallejo.....	21,107
Corte Madera...	607	La Grange....	400	Port Costa....	900	Vina.....	300
Cotati.....	200	La Larkspur....	612	Princeton....	300	Vineburg....	200
Cottonwood...	500	Lathrop.....	600	Red Bluff....	3,104	Walnut Creek..	538
Coyote.....	200	Lewiston.....	200	Redding.....	2,962	Warm Springs.	200
Crockett.....	1,500	Lincoln.....	1,325	Redwood City.	4,020	Waterford....	250
Crow's Landing	300	Live Oak.....	300	Richmond.....	16,843	Watsonville...	5,013
Daly City.....	3,779	Livermore....	1,916	Rio Vista....	1,104	Wheatland...	435
Danville.....	400	Lomita Park...	600	Ripon.....	500	Williams.....	650
Davenport....	300	Loomis.....	500	Riverbank....	200	Willows.....	2,190
Davis.....	939	Los Altos.....	500	Rocklin.....	643	Winters.....	903
Decoto.....	300	Los Gatos....	2,317	Rodeo.....	300	Woodland....	4,147
Del Monte....	300	Los Molinos...	200	Roseville....	4,477	Woodside....	300
Denair.....	200	Madison.....	300	Ross.....	727	Yolo.....	350
Dixon.....	926	Manteca.....	1,286	Sacramento...	65,908	Yuba City....	1,708
Drytown.....	200	Mare Island...	600	Salinas.....	4,308		
Duncan's Mills	200	Martinez.....	3,858	San Andreas...	1,183	Total Cities	
Durham.....	250	Marysville....	5,461	San Anselmo...	2,475	and Towns...1,347,844	
Dutch Flat....	750	Maxwell.....	500	San Bruno....	1,562	Add Suburban	
Elbridge.....	500	Mayfield....	1,127	San Francisco.	506,676	Population...368,115	
El Cerrito....	1,505	Menlo Park....	900	San Jose.....	39,642	Total Popula-	
Elmira.....	350			San Juan.....	350	tion Served..1,715,959	

Unmarked—Electricity only.
 —Gas only.
 —Gas and Electricity.

—Gas, Electricity and Water.
 —Gas, Elect. and St. Railways.
 —Electricity and Water.

—Electricity supplied through other companies.
 —Gas supplied through other companies.
 —Water supplied through other companies.

"PACIFIC SERVICE FACTS"

On September 28th, "Pacific Service" put into operation the new 6,000,000 cu. ft. gas holder in Oakland. The total storage capacity of the East Bay section is now over 10,000,000 cu. ft. which is approximately equivalent to the daily consumption of gas for that territory

*From Mount Shasta
to the Sea*

From the snowy peaks of the Cascade mountains, southward across the broad, fertile valley of the Sacramento, extends a three hundred mile line of steel towers carrying the water power of the Pit river to the shores of San Francisco bay.

There are over thirteen million pounds of steel in the sixteen hundred odd towers that constitute the line, every pound of which was fabricated by a California mill.

In this manner money derived from the sale of First Preferred Stock is retained within the State, encouraging industry and giving employment to thousands of Californians.

Pacific Gas and Electric Company
*First Preferred Stock is a Safe,
Enduring and Useful Investment
yielding 6 $\frac{2}{3}$ %.*

STOCK SALES DEPARTMENT
445 Sutter Street, San Francisco

\$90 per share

Price subject to change
without notice.

Free from State,
County and Municipal
taxes and Normal
Federal Individual
Income tax.



PACIFIC SERVICE MAGAZINE

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PUBLIC LIBRARY



ARTIFICIAL WATERFALL CREATED BY SPILLWAY AT PIT RIVER PLANT No. 1

Vol
14

NOVEMBER 1922

No.
6

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Pacific Service Magazine

Volume XIV



Number 6

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Plan of the new "Pacific Service" General Office Building about to be erected in San Francisco.

PACIFIC SERVICE MAGAZINE

Volume XIV

NOVEMBER, 1922

Number 6

The Value of Organization to a Concern Like "Pacific Service"

By WIGGINTON E. CREED

President of the Pacific Gas and Electric Company

There is an old business slogan which runs, "Organize, deputize, supervise." Of these three injunctions, the first is the greatest.

Organization is to personal activities what the machine is to mechanical work. It seeks to secure the same precision, ease of action, elimination of waste and highest accomplishment of work along the most direct lines which are everywhere typical of the well designed and operated mechanical device. While falling short of mechanical perfection, because human activities can never be subjected to exact laws, organization has to an extraordinary extent accomplished these purposes.

The organization plan of the Pacific Gas and Electric Company is an evolution. As the company grew, special problems of organization arose. These problems have been solved from time to time by modifications in the plan. The latest rearrangement of the structure has dealt primarily with the special difficulties involved in large size, diversity and wide geographic spread.

Usually an enterprise requires the management of only one line of production or operation. The Pacific Gas and Electric Company, however, combines problems of construction, maintenance and operation, not alone in one line but in the widely differing fields of steam and hydro electricity, gas, railroads, water and irrigation systems. In addition, this Company faces the difficulties inherent in the far-flung territory of its work. The railroad has been commonly recognized as facing

staggering organization problems as the result of being managed not at one place but throughout many cities and districts. This problem the Pacific Gas and Electric Company faces equally.

The general plan of its organization is based upon the generally accepted principle of specialization within the types of construction and operation involved; the main operating divisions being the Electric Department covering construction, maintenance and operation, and the Gas Department with similar subdivisions. Separate minor departments, however, cover the street car system and the water works systems owned by the company.

The financing of a modern business is of equal importance with its efficient operation. Many enterprises, mechanically efficient, have their effectiveness cut down by inadequate finance or by wasteful financial methods. This situation is recognized in the organization of the Pacific Gas and Electric Company, as may be noted from the chart, presented herewith, (see pages 182 and 183), by creating a separate finance division of the organization under a vice-president and treasurer. All matters of security sales, purchases, credit, operation of records and similar matters are properly given unified direction in this division in accordance with the policies determined by the president and board of directors.

Effective sales organization is fully as important to the highest success of an enterprise as are the two divisions so far covered. Many an enterprise producing first-class goods fails solely because it

has not developed a sales force which can sell its production with sufficient rapidity and continuity to clear the overheads. This fact is recognized in the Pacific Gas and Electric Company organization by the creation of a complete sales division, also under a vice-president, and with specialized departments so that each principal operating division has a specialized sales force concentrating upon the production of business in that particular field.

The importance of public relations and of the details of service in a large public utility enterprise are recognized in the creation of the Division of Public Relations and Service placed on an equality with the other main divisions and in charge of its own vice-president.

It will be noted in the chart that in addition to the operating departments a number of "service" departments are included, being entered in the vertical column at the left. This arrangement has special significance and is a further recognition of the necessity for highly specialized organization in a large enterprise. It indicates two dimensions of the organization. One set of departments specializes on a particular kind of operation, the others specialize on a particular kind of service. The Accounting Department, for example, serves all of the operating departments, keeping their records, preparing reports for them and combining all into a general set of accounts for the company as a whole. The Purchasing Department makes purchases and furnishes supplies to all the operating departments. The chart arrangement, therefore, properly indicates that each service department cross-sections the entire operation group, furnishing a particular specialized service to the entire company. The company thus has a large staff of highly trained specialists with an arrangement such that the services of each are available to the entire organization.

At the right of the chart and arranged cornerwise are shown the principal field

divisions of the company operating throughout practically all Central and Northern California. Each district and division is a complete unit by itself under one management, but related both to the operating and service divisions in such a way that the maximum of both direction and service advantages is received from the central office. This arrangement is imperfectly represented by the chart. The idea would be perfectly represented by a cube, the organization in reality being one of three dimensions, respectively; operating divisions, service divisions and geographic divisions. The detail of the inter-relations involved is somewhat complicated and impossible of brief explanation. The arrangement is such, however, that the man farthest in the field has guidance and service practically as complete as the employee in the home office. Upon the perfection of this detail to a large extent depend the economy and efficiency of the service rendered by the Company.

The executives of the Company have adopted the committee system for the origination of recommendations. These committees and their memberships are shown on the chart. Their main purpose is to afford a means of readily securing for executives all the facts and points of view bearing upon any problem or issue.

Other features not chartable enter into the complete organization. The service ideals of the Company, special fitness of executives and employees for their tasks, the merited good-will of employees, the standards of service to the customer no matter how small, these are all matters that have received the greatest care in the upbuilding of the Pacific Gas and Electric Company's organization. They form other phases of the organization fabric which in every possible way the Company is striving to make as complete and perfect as possible, to the end that it may give a maximum of service at a minimum of cost to the people of California.

“Pacific Service” To Have New Home

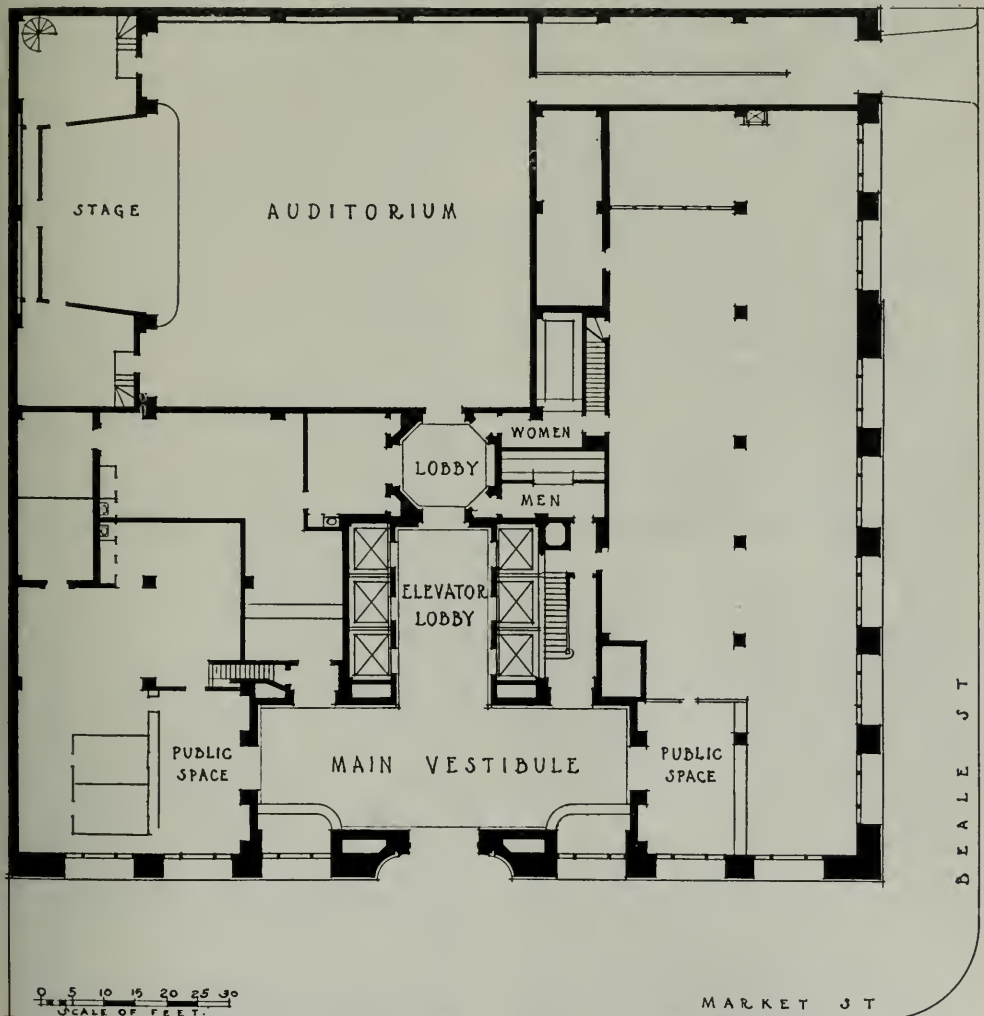
Monumental Structure in San Francisco to Provide for All General Offices of the Company

By Frank M. Harris, Department of Engineering.

“Pacific Service” is to have a new home. Down on lower Market street at the corner of Beale in San Francisco, adjacent to where the steel skeleton of the new Matson building towers high above the city’s traffic, a row of squat, one-story buildings, stands marked for demolition. In a very little while these will vanish before the

onslaught of the wrecking crews and in their place will rise a graceful, imposing structure, seventeen stories above the street, which will house all the general offices of the company.

The new location is most favorable in its selection and is in the district in which are located the headquarters of



Plan of main floor, devoted to departments which have most frequent contact with the public.
Note the spacious auditorium at the south-east corner.

many of California's great industries. But two blocks distant is the central ferry terminal, while the massive headquarters building of the Southern Pacific Company is separated from the site by but one block. Just across the way stands the mammoth Standard Oil Building, which, together with the sentinel tower of the Hobart Building, will alone surpass the new "Pacific Service" structure in height.

The necessity for such a massive edifice forcefully illustrates the growth of our company in recent years. It was only in 1916 that the completion of the present headquarters building at 445 Sutter street was celebrated, a structure seemingly commodious enough to provide office space for many years to come. Now, only six years later, the organization has so grown that various departments have been forced to seek quarters in no less than five widely separated localities in San Francisco. To house all of these detached offices under one roof in adequate quarters will tremendously increase the effectiveness of the organization as a working unit.

With the removal of the head office departments to their new Market street home the present headquarters building on Sutter street will be exclusively devoted to the uses of the San Francisco Division, which has also in late years found itself cramped for lack of space.

The design of the new building has progressed to the point where a description of its salient features may be given with considerable accuracy, although a vast amount of study is yet to be expended on the details.

The new building will cover the western half of the block between Beale and Main streets, and will rise to a height of seventeen stories. The other 50-vara lot on the Main street corner is occupied by the new sixteen-story building of the Matson Navigation Company, now under construction. The two structures combined will present one of the most striking blocks in the city.

Architecturally, the design is both simple and monumental. The exterior treatment of the main shaft will be in terra cotta with a granite base. The first story consists of an arcade with a central entrance arch on Market street. The top of the shaft is enriched by a colonnade which is intended to give interesting shadows and

a graceful and pleasing effect. The windows throughout the shaft are so grouped as to carry vertical lines from the base to the cornice, these lines being accentuated by the colonnade and the broken cornice.

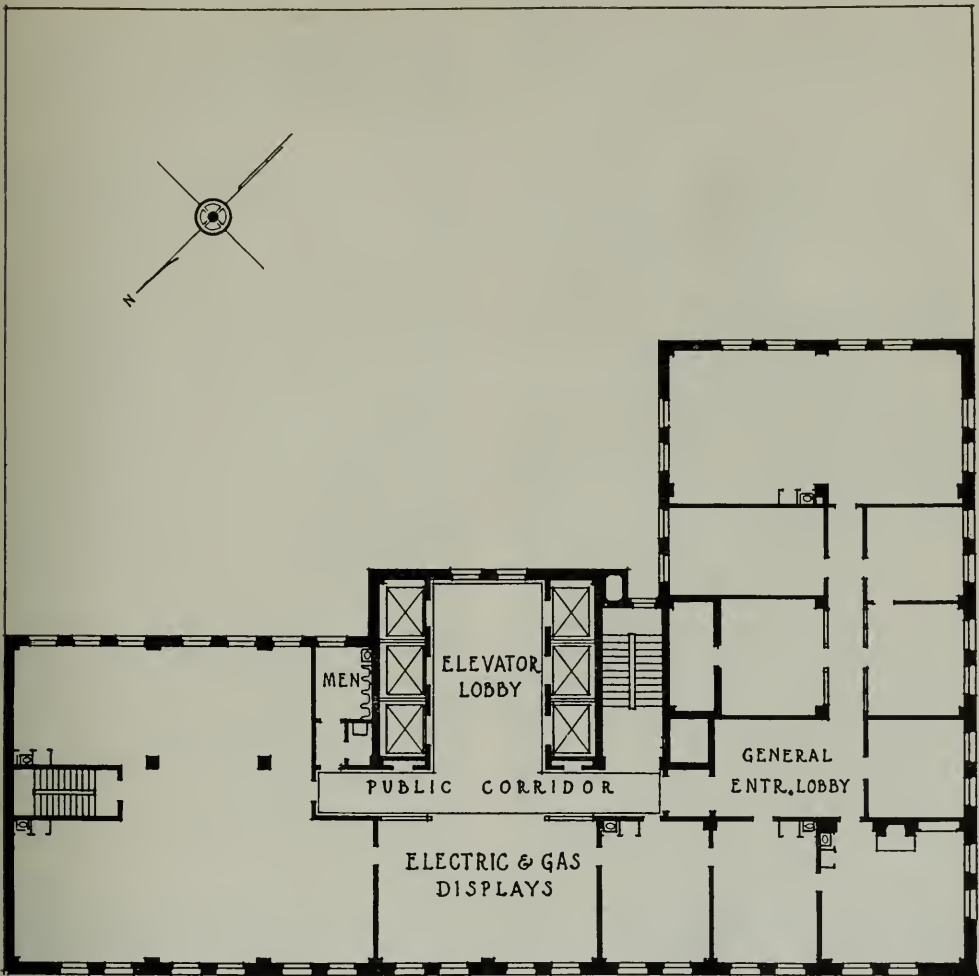
Special study will be given to the exterior lighting of the structure, with a view to the possible flood illumination of the entire facade, in keeping with the company's service. Such a scheme would be very effective when viewed from either Market, Davis or Pine streets or from the California street hill.

The first story covers the entire site, extending 137 feet 6 inches on each frontage. Above the first story the floor plans are "L" shaped, flanking upon a large open court some 90 feet square. Provision is being made in the foundations and lower steel columns for the future construction of an additional wing when expansion is required, the ultimate floor plan being "U" shaped. There is a corresponding court in the Matson Building adjoining, which offers full exposure to direct sunlight throughout the day.

The first floor is devoted largely to the Secretary's office with the Cashier's and Transfer Agents' forces, since these have most frequent and intimate contact with the general public. These will lie to the right and left of the main entrance lobby, which has been made a distinct architectural feature in marble.

Immediately in the rear is the elevator lobby with six high-speed cages of the most up-to-date type. The elevator service for a building of this height and floor area must be exceptionally good under the circumstances since the entire population enters and leaves the building within short periods of time in the morning, at noon and at night, quite unlike that of the usual office building. Particular investigation is being made of elevator machines taking alternating current service, as a means of effectively reducing the direct current demand in down-town districts. Several successful alternating current machines have been developed, the installation of which in the Company's building would have unusual advertising value.

Beyond the elevators is a smaller entrance lobby leading into the auditorium. This will have a flat floor for dancing



Typical upper floor plan.

and entertainments with portable chairs for 500 people and complete stage and dressing room equipment at one end, and the necessary hat and cloak rooms in the rear.

The floors throughout the building have been assigned to the general office departments in large concentrated areas, some being so large as to require two floors. Departments which are inter-related in their functions have been placed adjacent in so far as is possible. The main executive offices occupy the fourteenth floor.

Throughout the upper stories the elevator lobbies have been designed to serve as department entrance vestibules, so that those having business on any floor

can be promptly and effectively directed. These will be directly lighted by windows in the end of the lobby and will be protected from drafts by the closed system of ventilation.

The tendency throughout the building is toward large open working spaces wherever practicable, with glass partitions when the character of the work conducted makes sound proofing desirable. This is keeping with the best practice in large organizations and has been found to result in the highest operating efficiency.

The sixteenth floor is devoted exclusively to employees' activities central lunch room with adequate kitchens being situated here with the intent to provide cafeteria or table d'hôte service for both

men and women, such as is now offered by several large institutions in this city.

The P. S. E. A. library has been provided for on this floor as has also a women's section with rest and silence rooms.

The seventeenth floor has been assigned to a central blueprinting and photostating plant, and the architectural drafting room, together with certain elevator and mechanical equipment, doing away with unsightly pent houses on the roof.

The basement will be utilized for the boiler and mechanical plant and several small vaults for individual department use. One novel feature is the basement parking space for company automobiles entered by means of an inclined ramp from Beale street. Parking space on lower Market street will be increasingly congested from year to year.

The mechanical installation of the building will be extremely modern. To obviate street noise and dust which would enter through open windows on the main frontages a forced ventilation system will be adopted. By this means the necessary volume of fresh air of proper temperature and humidity will be circulated throughout the building. This will conduce greatly to the comfort of all, particularly in large open offices where the ventilation and temperature cannot be uniformly maintained by natural means of ventilation.

Internal communications are of basic importance in co-ordinating the activities of so large an organization. It is possible that an automatic exchange will be installed for inter-office use, each party calling local numbers directly by means of automatic instruments. For those locals which have frequent calls from outside parties, secondary instruments will be provided so that the interior use of the local will not interfere with the receiving of outside calls. The usual dictograph installation will connect department officers. The use of a pneumatic tube system for the rapid delivery of letter mail from a central distributing room has been proposed. This would however require a messenger service for such matter as could not be rolled for the pneumatic carriers.

The interior lighting, particularly of the drafting rooms is being carefully investigated. The system favored at present furnishes an intensity of 20-foot candles

at the working plane, for intensive drafting and computation work. For general use in offices this may properly be reduced to an intensity of 10-foot candles. Excepting for dark winter days, little or no lighting will be required, since all rooms are outside and naturally lighted under normal conditions. Special illuminative treatment is to be given to the auditorium.

This structure will house all of the general office force of the Company which is now scattered among five buildings, the entire 134,000 square feet of effective floor area being required for the present plus a reasonable expansion of force. Including the wing proposed for future construction, the ultimate effective floor area will total 176,000 square feet, approximately. The gross floor area of the ultimate building, including corridors, lobbies and other waste spaces will reach 230,000 square feet. The completed structure would be ample for the comfortable accommodation of 2,000 or more employees.

The architectural design is by Bakewell and Brown, Architects, of this city, who are best known locally as the designers of the San Francisco City Hall. They have associated with them C. H. Snyder, as consulting structural engineer, and Hunter and Hudson as consulting mechanical engineers.

As we look at the dilapidated, half dismantled one-story brick buildings now occupying the site, it is difficult to visualize the huge structure which is soon to stand in their place, even with the steel frame of the new Matson Building as a yardstick. For the first few weeks the progress will seem discouraging for it is necessary to go down thirty feet or so with the excavation and eighty or ninety feet with the foundation piles before it is possible to start upward with the construction. During the middle months of the construction period the work will be seen fairly to grow hourly with the erection of the steel and the setting of the masonry, slowing to a snail's pace apparently during the tedious interior finishing. Eighteen months may reasonably be required for the completion of structure from the time the first shovel of dirt is lifted, and busy months they will be for all those connected with the operations.

Impressive Ceremonies Mark Opening of Claremont Substation

By FREDERICK S. MYRTLE

With appropriate ceremonies, conducted under the auspices of the Oakland Electrical Club and in which Mayor Davie and other officials of Oakland's city government took active part, the new Claremont substation of our company's high-tension electric transmission system was switched into commission on Monday, October 23rd. The new substation is already taking care of the electric energy which comes in from the Pit river by way of Vaca-Dixon, Cordelia and the straits of Carquinez and is sending the product out over the net-work of wires that serve Oakland, Alameda, Berkeley and the surrounding territory.

Claremont substation has a marvelously picturesque setting. It stands upon an eminence overlooking Lake Temescal, in the foothills back of Oakland. It is the last word in modern electrical equipment and, as has already been recorded concerning the Vaca-Dixon substation, bus structures, oil switches and transformers are in full view out of doors. Grading for

the substation was started October 24th, 1921, so that within one day of a year this important piece of construction work was started, completed and put in operation.

Manager Lee Newbert of East Bay Division was in charge of arrangements for the opening ceremonies. Fully 300 people responded to the invitations sent out. A string of automobiles conveyed visitors to the scene. President Creed, Vice-President and General Manager John A. Britton and Second Vice-President and Treasurer A. F. Hockenbeamer, headed a representative delegation of company officials. Mr. William C. Sage, President of the Oakland Electrical Club, was accompanied by a number of his fellow members and others prominent in the electrical industry around the bay. Mayor Davie of Oakland gave his stalwart presence to the occasion, and another prominent official was Mr. A. E. Carter, Commissioner of Public Works in the city government of Oakland. The day



Claremont is perhaps the most beautifully situated electric substation in the world.

was glorious and the affair resolved itself into a most pleasurable outing.

Outside the substation building a speakers' balcony had been erected for the occasion. It was appropriately draped with the national colors, with the "Pacific Service" emblem conspicuous in the center. A switchboard at the back displayed the mechanical paraphernalia for the performance of the switching operations, first, receiving the power from the Pit into the station and, second synchronizing the station's output with the East Bay distributing system.

Arrangements had been made with Vaca-Dixon substation and Pit No. 1 power plant to have everything in readiness at a given signal, and that our visitors should be fully apprised of what was going on, an amplifier had been rigged up by which all responses to telephonic communication were heard as distinctly as though the speakers were within call. When all was ready Mr. Sage, as chairman of the day, mounted the rostrum and presented a short address in which he spoke of Oakland's unprecedented growth



Mayor Davies voiced Oakland's appreciation of the new station.

in recent years and the responsibilities it entailed upon her citizenship. It was necessary, he said, that power development should go hand in hand with all such growth and he realized that the power companies were alive to the situation and were acting accordingly. Nothing afforded a better illustration of this than the construction of a modern, up-to-date distributing substation in the foothills of the great city by the bay. It marked the terminus of the highest voltage line yet constructed, and the Electrical Club of Oakland was glad, said Mr. Sage, to spread its message to the world.

Mr. Sage then introduced Mr. P. M. Downing, Vice-President in charge of Electrical Construction and Operation, who explained in as untechnical terms as the occasion allowed the purpose for which Claremont substation had been constructed at a cost to "Pacific Service" approaching three-quarters of a million dollars. It was required said Mr. Downing, to give improved service not only to the east bay centers but to the entire "Pacific Service" territory. He told his audience of the recently completed Pit river development and what it meant to the industrial future of California, and he pointed to where the great steel towers on the hillside nearby were at that moment standing ready to convey the electric energy generated at the Pit to the banks of transformers, with their combined capacity of 90,000 horsepower, within a few feet of where he stood. It was a big problem to maintain continuity of service over a 250-mile stretch of country lying between power house and city, and incidentally Mr. Downing told his audi-



Mr. Britton reviewed Oakland's early electrical history.

ence something about an official so indispensable to the service but so little heard of on the outside, namely, the load dispatcher. An interesting piece of information afforded by Mr. Downing was that the lines between Claremont and Temescal substation, which was the distributing center for the city of Oakland, had been laid underground.

Then came Mayor Davie, with a heart-to-heart talk in the course of which he told his audience how he had first seen the light of day in Lassen county, within twenty miles from the point where Pit river power is now being generated. Of Oakland, the habitat of his later years, he spoke as a city now recognized among the first in the United States, as having the best city government, clean, honest and efficient. "It delivers the goods," he declared, "Besides, we knock the knocker."

Mayor Davie paid compliment to the energy and enterprise of "Pacific Service" and declared that its great achievement was only just in time for the industries that awaited its product.

"We are now ready to charge the line," said Mr. Downing, as he seized the telephone and gave the operator at Vacadixon the message, "We are ready for power from the Pit."

"I am ready," a gruff voice was heard in response.

Then Mayor Davie closed a switch which sent the power from the Pit into



President Creed in characteristic forceful attitude.

the station. A humming noise was heard, a siren shrieked and a bulb on the switchboard glowed with the light of energy.

"You can hear it," was announced. "The power is here."

The last stage was reached when Manager Newbert closed the paralleling switch which synchronized the Pit power with the entire system, so that it began without delay to add its full quota to the available output of "Pacific Service" energy.

Laughter went up from the throng when, in response to the announcement that the substation was now receiving and sending out the precious energy, the same gruff voice before mentioned was heard to say:

"All right. Good-bye."

That was all there was to it. All in the day's work; nothing more. Nothing to get excited about; just plain, everyday duty.

At this happy conclusion a huge American flag floated at mast-head, while the spectators cheered and a bugler



Prominent figures at the ceremony. From left to right they are Lee H. Newbert, William C. Sage, P. M. Downing, W. E. Creed, Mayor Davie of Oakland and John A. Britton.

sounded the call to the colors. This took place at precisely 12:49 o'clock.

Then Mr. John A. Britton, introduced by Mr. Sage as dean of the electrical industry of California, came forward with an address largely reminiscent in character. He told how he had watched the growth of the electrical industry in California for the past 48 years, from the day when a four-light dynamo mounted on the bed of a threshing machine made its appearance in the city of Oakland to the day of the present with its almost unlimited machine capacity in generating and distributing power.

"The Oakland company was organized with a station of 150 horsepower capacity. Today Oakland alone requires 75,000 horsepower for light and industrial purposes", said Mr. Britton amid responsive cheers. Mr. Britton thought that the credit for all this was largely due to the men of "Pacific Service." "Pacific Service" had been the pioneer, "Pacific Service" was and always would be in the lead of development.

Mr. Creed closed the speaking. He told of the beginnings of electrical development in New England fifty years ago, when it took 150 units, with turbines and water wheels, each operated by three men on a shift, to do what one installation could easily do in the present day with the same number of operators per unit. He

thought to the California engineers, more than anyone else, belonged the credit for the wonderful developments in electrical manufacturing and distribution. The greatest achievement of all, perhaps, had been the solution of the distribution problem which permitted the transmission of electric energy over long distances, and it was worthy of note that the oil-switches in use were the discovery of a California engineer. California, with but one-thirtieth of the population of the country, developed 21.6 per cent of all the power in the United States. Moreover, since June, 1920, more development had been put under way in California than in the entire previous history of the country. Trained organizations were responsible for this growth.

Coming nearer home, Mr. Creed spoke of Oakland's great opportunities in the way of industrial development. It had taken a new faith to realize the accomplishments of the world by collective effort against the theorizing of the past. Right at hand lay the site for a great material empire, and the dream, he thought, was on the point of realization.

Following the ceremonies a delightful al fresco luncheon was held under the trees on the slope overlooking lake Temescal. Then came the return home and Claremont substation was left to its tireless task.

California's Lead in Water-Power Production

The following figures, taken from the most recent report of the United States Geological Survey, show the number of thousands of K. W. H. of electrical energy produced by water power in the United States during the nine months to September 30, 1922. The five states having the largest output are shown with amount of energy produced by each. During the nine months' period, California produced 21.9 per cent of the total hydro-electric output of the entire country.

Month 1922	Calif.	N. Y.	Wash.	Mont.	S. Car.	Total Five States	All Other States	Total All States
Jan.....	254,629	225,934	107,821	55,359	76,453	720,196	573,243	1,293,439
Feb.....	240,360	212,793	90,047	63,650	72,815	679,665	541,257	1,220,922
Mar.....	291,579	235,959	92,463	80,790	75,490	776,281	691,551	1,467,832
Apr.....	306,997	233,376	95,267	81,703	71,368	788,711	699,594	1,488,305
May.....	358,807	260,495	102,712	85,710	67,933	875,657	771,017	1,646,674
June.....	369,533	242,493	100,882	82,969	69,511	865,388	722,555	1,587,943
July.....	375,313	243,487	104,842	82,439	71,101	877,182	675,869	1,553,051
Aug.....	358,344	259,025	109,062	83,921	72,411	882,763	604,206	1,486,969
Sept.....	331,948	252,241	99,259	80,864	69,137	833,449	557,624	1,391,073
Total 9 Mos.	2,887,510	2,165,803	902,355	697,405	646,219	7,299,292	5,836,916	13,136,208

During this nine months' period, Pacific Gas and Electric Company produced 837,048,000 K. W. H. by water power. This was 28.9 per cent of the output of the state of California, and 6.4 per cent of that of the entire country.

Pioneers of Electrical Industry Honored by Development League

Long delayed tribute to three pioneers of hydro-electric development in California was paid by the San Francisco Electrical Development League at a luncheon held at the Palace Hotel on October 30th. The occasion, which was appropriately designated Pioneers' Day, broke all previous attendance records of the league, over seven hundred members and guests being present.

In recognition of the work done by John Martin, Eugene de Sabla and H. H. Noble, honorary certificates of membership were conferred upon those gentlemen by the league. These certificates bore pictures of the early power plants and the following inscription:

"This little tribute of honorary membership is extended to you as a token of our appreciation of your magnificent pioneer work in the upbuilding of the electrical industry in California and the West—a work that will stand as a monument to your genius as everlasting as the eternal rocks of the Sierra, where lie the fountain sources of our electrical power in California." The certificates were signed by R. A. Balzari, president, and J. W. Mahoney, secretary of the league.

Mr. John A. Britton, as toastmaster, personally conferred the membership certificates on Messrs. Martin and Noble. Mr. de Sabla, who is now in New York, wired his regrets and his appreciation of the honor bestowed upon him. The message was read by Mr. Britton.

Mr. Martin, responding

to the toast-master, told of the building of the West's first hydro-electric plants, of which he was the guiding genius. He told of the difficulties overcome in the construction of Folsom power house in 1895 and the Rome and Yuba plants soon afterward. He paid tribute to Mr. John H. Kelly, who at the time of the building of California's first plants was consulting engineer for the Stanley Electric Company of Pittsburgh and rendered great assistance to Mr. Martin in pioneering the work. Mr. Kelly died quite recently, and at Mr. Martin's suggestion a tribute expressing the esteem and sympathy of the league was directed to be sent to Mr. Kelly's family.

Aside from the speakers, a number of other "old timers" were present, all closely identified with the electrical development of the West. Among them were Messrs. A. G. Wishon, W. S. Hager, F. M. Ray, Samuel Taylor, A. H. Babcock, Wynn Meredith, Prof. C. L. Corey and Prof. Harris Ryan.

The entertainment features of the program were novel and varied. Through the courtesy of the Associated First National Pictures of Northern California a Buster Keaton comedy, "The Electric House," was given its first showing before release. The picture was an amusing travesty on the modern electric home and the antics of the solemn-faced comedian and his novel electric devices proved effective mirth-producers. During the showing of the picture the "Pacific Service" orchestra rendered popular music.



Center—John Martin.
Left—H. H. Noble.
Right—Eugene J. de Sabla.
Pioneers of the hydro-electric
industry in California.

The Pacific Service Employees Association "Road Show," recently returned from a successful tour of Northern California, completed the entertainment program. Captain George B. Baldwin delivered a twenty-minute talk on the development of "Pacific Service," from its inception in 1895 to its present day achievements. The lecture was illustrated by an illuminated map, on which the various transmission lines were shown in colored lights, as well as by lantern slides, and was enthusiastically received. There followed a practical demonstration of high frequency electric current, presented by Mr. W. R. Coover, also of "Pacific Service."

The meeting closed with a rising vote of thanks to the pioneers for being present and helping to make Pioneers' Day a success.

John Martin and Eugene de Sabla together planned, financed and built the earliest hydro-electric plants, most of which are still in operation today as enduring monuments to their ability and foresight. These two pioneers first became associated in 1894, at which time Mr. de Sabla was contemplating the construction of a hydro-electric plant on the South Yuba river, near Nevada City, for the purpose of supplying electric energy to nearby mines and communities. Mr. Martin became interested in the undertaking and journeyed to Pittsburg, where he secured the exclusive Pacific Coast agency for the Stanley Electric Manufacturing Company. Returning from the East, he assisted Mr. de Salba in financing the venture and together they formed the Nevada County Electric Power Company. The construction work, in spite of the many difficulties that had to be overcome, progressed rapidly, and in May, 1896, the power house and transmission line to Grass Valley and Nevada City were placed in service. In honor of Mr. R. R. Colgate of New York, who had invested considerable capital in the enterprise, the plant was called Rome power house, Mr. Colgate's first name being Romulus.

Electric power for mining so grew in favor that additional sources of supply became necessary. Accordingly construc-

tion was started on what is known as the old Yuba plant, above Brown's valley, eighteen miles from Marysville. In March, 1898, the development was completed and placed in operation.

During the year 1898, due to an abnormally dry winter, the flow of the Sierra streams dropped to the lowest level on record, greatly curtailing the output of Folsom power house, which supplied Sacramento. In order to alleviate the shortage, work was rushed on a new plant on the north Yuba and in September, 1899, Colgate power-house went into service with the first long-distance transmission line to Sacramento complete and in operation. Later this transmission line was extended to Oakland, and in this connection another engineering triumph was achieved in the spanning of the straits of Carquinez with aerial cables stretched between towers erected on the bluffs overlooking the straits.

Other developments followed in rapid succession. About 1900 Mr. W. H. Crocker, with his brother-in-law, Prince Andre Poniatowski, acquired the properties of the Blue Lakes Water Company in Amador county and started the construction of a power development on the Mokelumne river near Jackson, with a transmission line to San Francisco and Oakland, 112 miles distant. At that time the maximum transmission voltage used was 30,000. Mr. Martin, as representative of the Stanley Company, guaranteed a safe transmission of current at 60,000 volts and pointed out the resultant saving in cost for copper by utilization of the higher voltage. As a result he secured a contract for the installation and the line was built at 60,000 volts, which was at that time higher than any transmission line in the United States and was the forerunner of all future high tension development.

Such is the story, only partly told, of some of the problems and achievements of these pioneers. And to the foresight and the courage these men, more than any other factor, do we owe the comforts, conveniences and necessities afforded us by an abundance of hydro-electric power which we of California today enjoy.

OUR "PACIFIC SERVICE" EMPLOYEES ASSOCIATION

San Francisco Section Elects Officers.

On the evening of October 26, San Francisco Section held its annual election of officers for the coming year. A spirited contest developed for the office of Chairman, with the result that the "progressive" candidate, Grover S. Tracy, of the New Business Department, was elected to fill the office. J. M. Williams, Chief Operator of Station A, was the choice of both tickets for vice-chairman. Elmer Campbell, of the Gas Department, was elected Secretary-Treasurer; Frank Lyttle and E. C. Wood were elected delegates for the selection of the member-at-large.

All candidates made stirring campaign speeches, outlining their platforms and policies. The meeting was reminiscent of an old time party convention before the advent of the direct-primary and created great enthusiasm among the members.

Retiring Chairman Charles E. Larabee presided and read his report, outlining the sectional activities for the past year and introduced many helpful suggestions for the benefit of the incoming administration.

The social portion of the evening's program was in charge of the ladies of the Section, with Miss M. Gray as Chairman of the Committee. Special music was provided and dancing was enjoyed until a late hour.

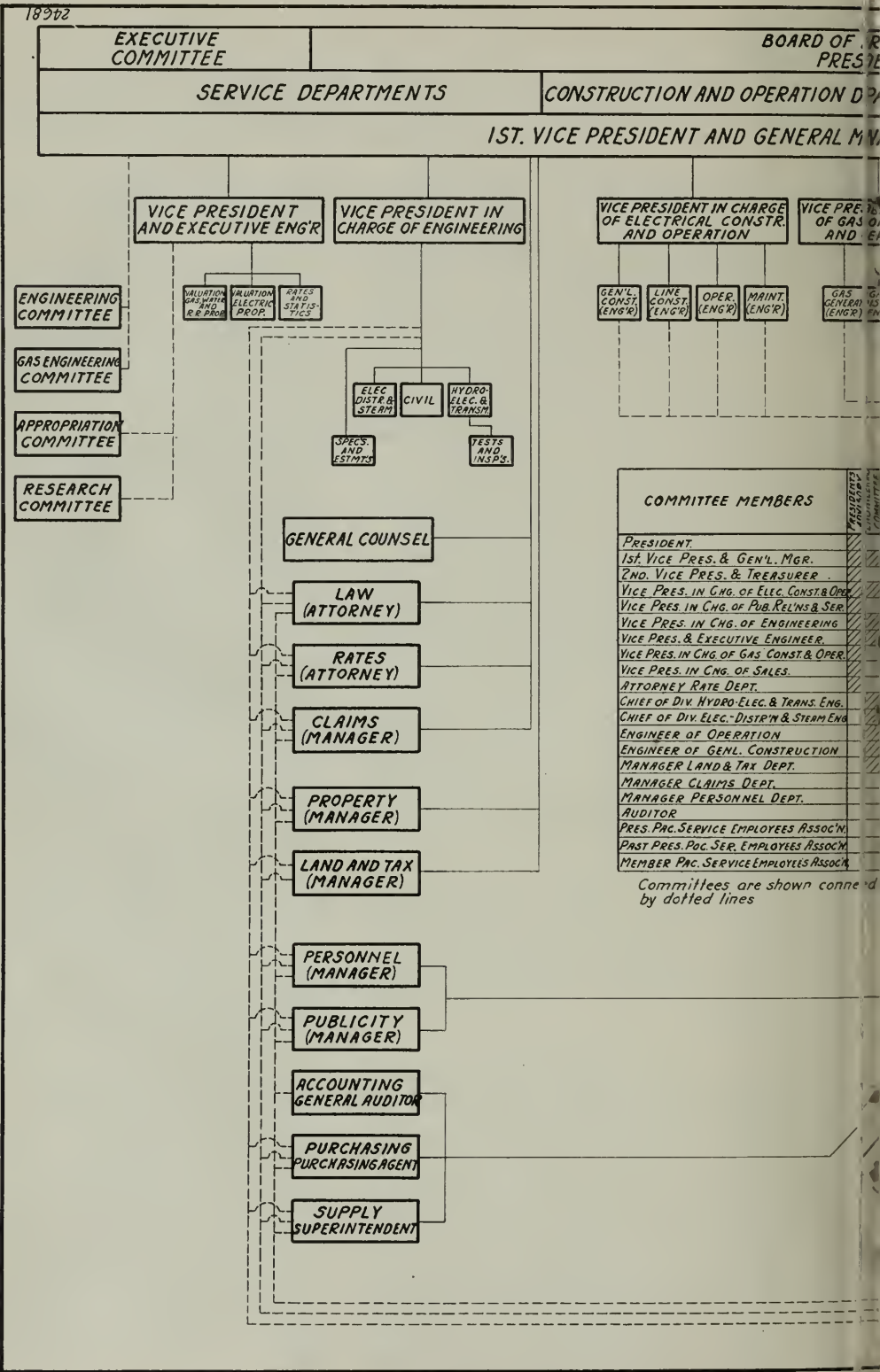
During the dancing a mock wedding was enacted by a number of the girls. The bridal party consisted of Miss Camille Looney, the bride; Miss Nellie Robinson, the groom; Miss Ruth Herbert, bridesmaid; Miss Lucy Keane, the mother. Miss Zita O'Connor played the part of the minister. The attendants were: Miss C. Rosenbach, Miss M. Gray, Miss Josephine LeFargue, Mrs. Mary Jackson and Miss Scott. The wedding was very well done, Miss O'Connor, as the preacher, causing

a great deal of merriment by her reading of the marriage service.

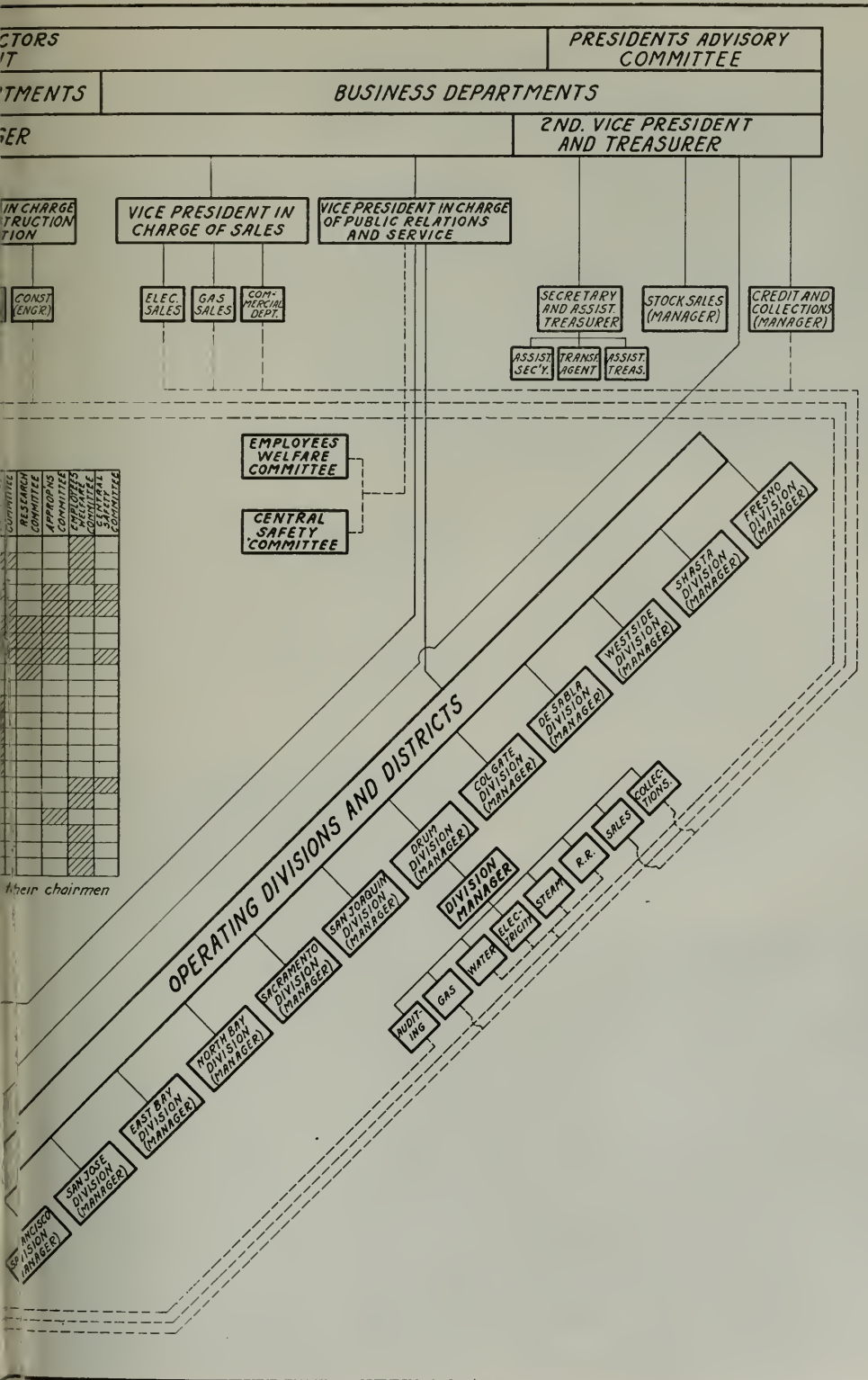
The Fourth Annual Marysville Duck Stew.

The Duck Stew given by Colgate and de Sabla Sections on the evening of October 28 at Marysville registered complete success all the way through. When the gong sounded at 6:30 all "fell to" and the spread prepared by C. L. Bowen was made short work of. The affair was held in the Tourist Garage owned by E. Coats and P. Wilcox, who turned the building over to the committee early in the morning. In a short while it was transferred into a banquet hall that accommodated over 600 people with room to spare. The stew was served in pails at regular intervals and no one went away hungry. Paper caps were provided for the diners, who kept up a merry din with shouting and hammering on the plates, in an uproar. To add to the merriment, music was provided during the evening by the Marysville Grammar School Band, under the direction of Instructor Silver.

A Minstrel Show began at eight o'clock in Foresters' Hall across the street, which was preceded by an address of welcome by Superior Judge E. P. McDaniel, urging loyalty to one another, loyalty to the government and loyalty to the Constitution of the United States. He commented on the wonderful spirit of co-operation and good fellowship that prevailed in the Association. Following the judge, Mr. John A. Britton addressed the members on subjects of importance to their welfare. Division Manager Ed Johnson, with a few well chosen words, introduced each speaker. At the close of the Minstrel Show, dancing was enjoyed until midnight. Ideal weather and high-ways went a long way to make the 1922 duck stew one of the most successful ever held.



Organization Plan of the Pacific Gas and Electric Company



The Home of White Coal

Written for Pacific Service Magazine by FRANK HONEYWELL, Publisher, Pacific Rural Press

California is without coal and its oil may become exhausted; but so long as rain and snow fall in the mountains there will come an inexhaustible supply of electricity upon which the agricultural and industrial needs of the State may rely implicitly.

To those who have not visited the mountain sections of Northern California there is a joy awaiting.

Recently the Pacific Gas & Electric Company were the hosts to a party of about fifty men from the sections served with power by this company. The party was made up of Farm Bureau Officials, Farm Advisers and about a dozen other invited guests, the writer of the number.

Prominent among the guests were Luther Burbank, world famous horticultural genius and Professor W. F. Durand, head of the Mechanical Engineering Department of Stanford University and one of the designers of the Liberty Motor.

Every arrangement had been made for the comfort of the guests with special sleepers and a dining car from San Francisco to Sisson, where the party was transferred by the McCloud River Railroad to Bartle and then on its own line of 33

miles into Camp Pit No. 1. The trip from Sisson to the Camp was through forest and brush, along the south side of Mt. Shasta. Virgin forests and five snow-capped mountain peaks made a beautiful panorama as the train carried us in.

At Camp Pit No. 1 we found the first unit of the proposed electrical work completed. The great concrete building, which houses the two big turbines, that generate 93,300 horse power, is built to last for generations. In fact all the work done by the company at its various plants in that section is of the most substantial character. A large part of the day was devoted to traveling from plant to plant on Hat Creek, a tributary to Pit River, and to inspection of the great two mile tunnel, which carries the water through the mountain and delivers it to the penstocks which in turn carry it down the mountain under heavy pressure to the first unit on Pit river.

Four other plants are to be built at lower levels on Pit river to use the water over and over again for power purposes; and then the water will be returned to the river bed and be ready for irrigating uses.

To the writer, who had not before seen such great electrical equipment, the trip was most interesting and instructive. It gave one an idea of the vast potentiality of our mountain streams.

Following are those who enjoyed the trip to the Pit river country:

Sam Beckett, irrigation engineer, University of California and Federal Government; M. B. Boissevain, farm adviser; Ralph D. Bollman, president farm bureau; F. E. Boyd, General Electric Co.; E. A. Breckenridge, president farm bureau; H. G. Brown, president farm



Left to right: F. E. Boyd, General Electric Co.; Jas. Martin; Jos. Jellyman; Luther Burbank; Prof. W. F. Durand of Stanford University; O. W. Peterson; R. E. Fisher and F. A. Leach, Jr.

bureau; Luther Burbank; E. E. Burnett, president farm bureau; A. M. Burton, farm adviser.

A. E. Caldwell, P. G. & E. Co.; C. H. Claytor, P. G. & E. Co.; E. W. Curtis, farm adviser.

John R. Denman, president Poultry Producers Association; H. E. Drobish, farm adviser; Prof. W. F. Durand, Stanford University.

R. E. Fisher, P. G. & E. Co.; Prof. L. J. Fletcher, division of farm engineering, University of California.

G. G. Galbraith, president farm bureau; L. F. Galbraith, P. G. & E. Co.; A. J. Garin, president farm bureau; E. A. Gassaway; Geo. A. Goatley, farm adviser; H. I. Graser, farm adviser.

F. H. Harvey, California farm bureau federation; Frank Honeywell, Pacific Rural Press.

A. A. Jungermon, farm adviser.



Visitors inspecting Hat Creek Plant No. 2.

C. L. Killam, P. G. & E. Co.; P. I. Kurtz, P. G. & E. Co.

F. A. Leach, Jr., P. G. & E. Co.

Warren H. McBryde, California-Hawaiian Sugar Co.; R. D. McCallum; D. C. MacLise, assistant comptroller, University of California; C. O. Mann, president farm bureau; W. A. Merriam, president farm bureau; C. B. Messenger, *California Cultivator*; Spencer Moore, P. G. & E. Co.

L. J. Nevraumont, P. G. & E. Co.; Warren D. Norton, farm adviser.

F. A. Peck, P. G. & E. Co.; O. W. Peterson, P. G. & E. Co.

R. R. Robinson, P. G. & E. Co.; R. T. Robinson, farm adviser; A. M. Ruess, P. G. & E. Co.

W. H. Saylor, *Pacific Dairy Review*; W. W. Shuhaw, P. G. & E. Co.; Prof. Alfred Smith, division of agronomy, University of California.

J. A. Teagarden; C. H. Thurman, president farm bureau; Prof. Gordon N. True, division of animal husbandry, University of California.

H. A. Walker, P. G. & E. Co.; Prof. H. Weinland, farm adviser; W. B. Wellman, Wellman, Peck & Co.; J. C. Whipple, president farm bureau; L. R. White, P. G. & E. Co.

W. H. Cuddeback, assistant farm adviser; E. E. Frasher, assistant farm adviser; Walter W. Weir, drainage engineer, University of California.



Luther Burbank, bidding Pit One au revoir.

The Financial Side of "Pacific Service"

It is believed that the following résumé of the Company's operations, which is reprinted from a recent issue of the "United States Investor" will be of interest to our readers:

"To add thirty new customers in each working hour during a period of two months is something of an accomplishment in public utility operation, even in a territory where rapid expansion has come to be accepted as a matter of course. Yet this is the record of the Pacific Gas and Electric Company, which, during the months of August and September, 1922, and solely as a result of normal growth, connected 11,659 new services to its distribution lines, bringing the total number of consumers served at the close of September up to 628,396. A short discussion of this progressive utility will doubtless interest our readers, its securities being held by 53,000 investors scattered throughout the country.

HISTORY AND BUSINESS FIELD

"The Pacific Gas and Electric Company is one of the largest and strongest public service corporations in the country. It was organized under the laws of California in 1905 as a consolidation of a number of well-established public utilities, including some of the earliest and most successful hydro-electric developments in the world. Its gas business extends back sixty-eight years; its steam electric business forty-three years, and its hydro-electric development twenty-seven years.

"The Company's operations extend into thirty-six counties of Central and Northern California, having an area of 54,000 square miles—equivalent to the combined areas of Connecticut, Massachusetts, Maryland, New Hampshire, New Jersey, Rhode Island and Vermont. There reside in this territory approximately 2,000,000 people, or upwards of one-half of the population of the entire State of California, the Company's field of operations embracing some of the most prosperous and rapidly growing sections of the country, including the San Francisco Bay section and the large fertile valleys of the Sacramento and San Joaquin rivers.

"About sixty per cent of the Company's operating revenues are derived from the sale of electricity, and about thirty-five per cent from sales of gas. The Company also owns and operates the street railway system of the City of Sacramento, and is engaged in the sale of steam for heating, and of water for irrigation and domestic purposes, deriving approximately five per cent of its revenues from these and other less important activities.

ELECTRIC DEPARTMENT

"According to records of the United States Geological Survey, the Pacific Gas and Electric Company in 1921 ranked second among the public utilities of the United States in its output of hydro-electric energy, and third in its total aggregate production of electricity from steam and water power. Within the past month it placed in operation Pit River Plant No. 1, with an installed capacity of 93,834 horsepower, and containing the second largest generating units in the country.

"There are now in operation 28 hydro-electric generating plants with an installed capacity of 417,829 horsepower, and 4 steam turbine electric plants with a capacity of 173,592 horsepower; also over 240 substations and upwards of 10,000 miles of transmission and distribution lines, with a connected load of 1,093,192 horsepower.

"In the Pit River Basin the Company controls a water power situation which is almost unique. The Pit River has its origin in numerous large and perpetually flowing springs rising out of the ancient lava beds of the southern end of the

Cascade Mountains in northern California. The annual flow of these springs amounts to approximately 1,800,000 acre feet per annum and is practically constant; thus enabling the Company to dispense, in this region, with the storage dams and reservoirs which form so costly a feature of most hydro-electric installations. This Pit River project is capable of an ultimate development of approximately 600,000 horsepower of hydro-electric energy, three plants with an aggregate capacity of over 127,000 horsepower having already been completed and placed in operation. Additional units will be constructed as required.

"The Company in the seven months ended July 31, 1922, produced 653,-273,000 kilowatt hours of hydro-electric energy. This was larger than the entire output of any single state excepting California, New York and Washington, and represented 30 per cent of the output of California and 6.5 per cent of that of the country.

GAS DEPARTMENT

"The Company's Gas Department includes nineteen manufacturing plants with an aggregate capacity of 72,470,000 cubic feet per day, and 3,272 miles of mains. Sales of gas have shown a steady and uninterrupted growth for many years, and during 1922 will unquestionably reach 12,000,000,000 cubic feet, the Company being among the first half-dozen utilities in the country with respect to its output of this product. There is in California a fertile field for increased sales of gas for industrial purposes and the State's equable climate lends itself particularly to the use of gas as an agent for economical and efficient heating of homes and buildings.

CAPITALIZATION AND VALUATION

"There were outstanding in the hands of the public at September 30, 1922, \$112,053,200 of Funded Debt, representing 57 per cent of total capitalization, \$49,693,210 of Preferred 6 per cent Stock and \$34,684,034 of Common Stock. With respect to the Preferred Stock, it may be said that the great bulk of this security has been sold in California within the past eight years. The Pacific Gas and Electric Company was the first public utility in the United States to adopt the so-called "Customer Ownership" plan, and in the period from 1914 up to the present time has sold over \$35,000,000 par value of its 6 per cent Preferred among its customers, employees and others, thus creating a substantial following among local investors.

"Plants and properties account at September 30, 1922, stood at \$197,088,-754.70, but a recent careful inventory and appraisal of the Company's properties showed a valuation at the close of 1921, based upon a five-year average of costs, of well in excess of \$200,000,000, and a present-day value in the neighborhood of \$240,000,000. These valuations are exclusive of water rights, franchises, going concern and all other intangibles.

"The Company for many years has maintained a strong financial position, having \$6,498,880.37 cash on hand at the close of September, 1922, with net current assets on that date of \$9,507,772.22.

EARNINGS

"In the twelve months ended August 31, 1922, the Company's gross revenue amounted to \$38,422,311, an increase of \$856,043 over the corresponding period of last year. Operating expenses of \$23,888,363 showed a decrease of \$791,739. Net income available for bond interest and discount was \$14,533,947, or \$1,647,782 in excess of last year's figures, fixed charges being earned 2.7 times.

"After allowing \$3,410,920 for renewals and replacements reserve, there remained a balance of \$5,690,852 for Preferred Stock dividends, and \$3,206,005 for Common. This represents 9.2 per cent earned upon the outstanding Common Stock in the twelve months. The present dividend rate of 5 per cent has been maintained for some years, in addition to which an extra stock dividend of 2 per cent was paid at the close of 1921."

Pacific Service Magazine

PUBLISHED IN THE INTERESTS OF ALL EMPLOYEES OF THE
PACIFIC GAS AND ELECTRIC COMPANY

JOHN A. BRITTON - - - - EDITOR-IN-CHIEF
FREDERICK S. MYRTLE - - - MANAGING EDITOR
A. F. HOCKENBEAMER - - - BUSINESS MANAGER

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at 445 Sutter Street, San Francisco

*The Pacific Gas and Electric Company desires
to serve its patrons in the best possible manner.
Any consumer not satisfied with his service
will confer a favor upon the management by
taking the matter up with the district office.*

VOL. XIV. NOVEMBER, 1922 No. 6

EDITORIAL

At the State election held November 7, the voters of California, by a very decisive majority, rejected the proposed constitutional amendment which was very generally spoken of under the misleading title of the California Water and Power Act.

This deadly menace which was pointed at the very heart of California progress and development was presented to the people in the guise of a measure having for its ostensible purpose the placing of the water power sources of the state in the hands of the people thereof. It was, in reality, a scheme to deliver the State into the hands of a board of political appointees invested with powers so absolute in their character as to place those appointees almost beyond the reach of legal restraint. Had the voters accepted the amendment, power would have been given to the appointed board, in furtherance of a declared purpose of conserving, developing and controlling the waters of the state for the use and benefit of the people, to place the State of California under bonded indebtedness of \$500,000,000, to begin with, and to lay further burden of taxation upon her people when, in the opinion of that board of five men, it should be necessary or advisable to go farther afield in the direction of public service enterprise under state ownership and control.

The terms of this proposed constitutional amendment have been gone over

so often that it is not necessary to recite them here. It is sufficient at this time to congratulate not only ourselves, but the people of California generally upon the decisive defeat of a measure that, stripped of the veneer of golden promise, was nothing more nor less than an insidious attempt to destroy at one blow the credit of California and, at the same time, put a definite check upon personal initiative and enterprise under which alone, as common sense teaches us, is fostered that spirit of emulation which makes for material advancement in every field of public endeavor.

Under the heading "Voters Rebuke Theorists" *San Francisco Business*, the official organ of the San Francisco Chamber of Commerce, has the following to say:

"In rejecting the Water and Power Act at the polls last Tuesday, the people of California rebuked the rainbow-chasers and visionaries who would have had the state increase its bonded indebtedness six times to embark in a fantastic venture for which there is not the remotest need.

"The passage of this extraordinary measure would have been a real calamity for California, and the thinking voters who defeated it performed a substantial service to their state.

"The defeat of the act, it is to be hoped, will serve as a check against the spread of unsound economic theories among publicists and near-publicists. There has been altogether too much agitation for experiments in legislation—for suggested interference not only with established industries, but with the initiative of many legitimate business groups.

"Putting the control of industry into the hands of politicians with five hundred millions of the people's money to spend, as the Water and Power Act proposed, would have been such an imbecile thing that it is even now bewildering to think it was ever seriously considered.

"What is needed probably more than anything else is a return to first principles and to clear thinking—a realization of the fact that the function of government is political, not industrial. The march of mind calls for the repudiation of every attempt made to have the state trespass on private business."

That society, as constituted at present, has as yet evolved no successful substitute motive to replace the spur of individual initiative and reward for merit is primarily the reason why private ownership and operation is generally more economical than public ownership and operation, is the opinion of Mr. Carl D. Jackson, chairman of the Wisconsin Railroad Commission, a body, like ours in California, having jurisdiction over the public utilities of that state. Mr. Jackson goes on to say:

"Discipline in private management is generally better maintained and waste of effort more generally eliminated. At the same time, the spur of economy in purchases and in all work is generally greater under the private incentive than under government control and operation. The three-year results of operation of the municipal plant at Seattle show a deficit before depreciation of \$101,803, and on the basis of depreciation of nearly \$2,000,000. When it is considered that this deficiency is before any charges for taxes which would have been contributed by a private utility to the city, it can hardly be said that the experience of Seattle is encouraging to those who are weighing today the relative advantages of municipal and private operation.

"In many cases the results of municipal operation are made to appear more favorable than they actually are because of failure to make the proper separation between the affairs of the municipal utility and the financial transactions of the municipality."

A prediction that California is destined to grow more rapidly as a manufacturing state than it has in recent years, and that notwithstanding the fact that the industrial growth of this state, according to the latest government census, has brought California up to eighth place in the list of manufacturing states in the country, was made recently by Mr. George A. Hughes of Chicago, president of the Edison Electric Appliance Company, in an address to members of the Oakland Electrical Club.

Upon the much discussed question of electric power service Mr. Hughes was emphatic in his appreciation of conditions out West. He said:

"Californians may have many things to complain of in the nature of public

utility service, but not when it comes to electric power. The best and the cheapest electric power in the world is supplied by the electric power companies of this state."

Mr. Foote a Vice-President



At a meeting of the board of directors of our company held at headquarters in San Francisco, November 22, Mr. D. H. Foote, secretary of the Company since 1907, was given the title of third vice-president in addition to that of secretary.

Mr. Foote is a native of Philadelphia, and the greater part of his business experience, which was along banking lines, was gained in the position of secretary and treasurer of the Union Trust Company of that city. He came to California in 1901, and, upon the organization of the California Gas and Electric Corporation, in 1903, he became its first cashier and assistant secretary. In 1905 the Pacific Gas and Electric Company was organized and in July, 1907, Mr. Foote was elected to the responsible position of secretary of the company. In 1909 he was elected a member of the board of directors and later, in 1910, was also appointed assistant treasurer.

Ever since his connection with "Pacific Service" Mr. Foote has had charge of the details of cash and banking operations of the company, as well as the issuance and transfer of stocks and bonds, his banking experience especially fitting him for this highly technical class of activity. As secretary, Mr. Foote has had custody of the corporate records, documents and indentures which are deposited in the company's archives. His secretarial activities have included the disentanglement of many perplexing problems in connection with the corporation records of various subsidiary companies which were consolidated with the Pacific Gas and Electric Company. The present clear condition of such records is largely the result of his energetic and careful attention.

"Pacific Service" at the California Industries Exposition

By FRANK TALCOTT
Superintendent New Business Department, San Francisco Division

When the second annual California Industries Exposition opened its doors on October 7, "Pacific Service" was in readiness with no less than three attractive and distinctive exhibits, consisting of a miniature model of the newly completed Pit River Plant No. 1, a model electric kitchen and a gas house-heating display.

The power house model was perhaps the most attractive and spectacular exhibit of the exposition, attracting thousands of people and causing much favorable comment. Complete to the most minute detail and constructed to scale, it showed the tree-clad hillside of the Pit river canyon, the steel pipe lines, the power house and the outgoing transmission lines, with their tiny copper cables, supported on diminutive steel towers. Real water coursed through the power house, from which it surged forth into the Pit river. The realistic effect was heightened by sparks of blue flame, discharged from the cables of the transmission line, which were charged with high frequency current.

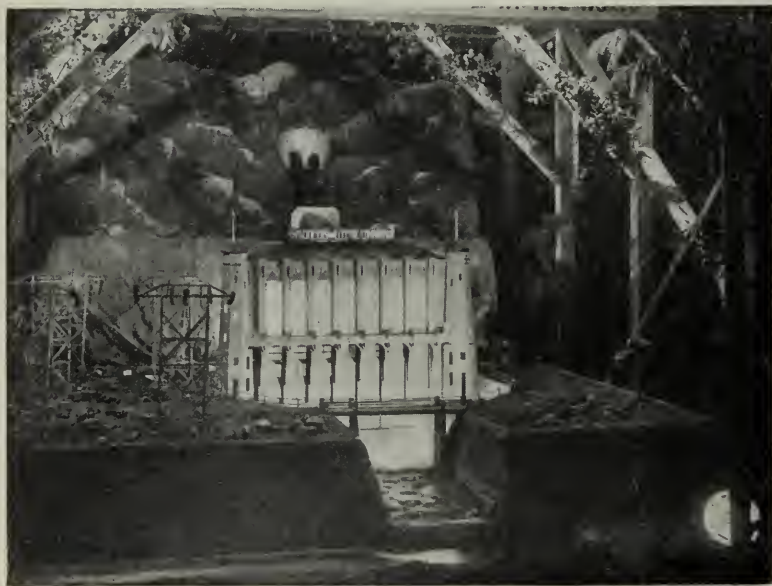
The model electric kitchen, represent-

ing the last word in modern and efficient culinary appliances contained, in addition to electric range and water heater, a dish-washing machine, electric air heaters and a refrigerating machine. The total attendance, according to estimates of Mr. G. W. Barker, who was in charge at the booth, was over 13,000, with an average daily attendance of over 600. That the exhibit was well worth while from a sales standpoint is evidenced by the fact that several direct sales, including two complete electrically equipped homes, have resulted, as well as nearly a hundred good prospects for electric cooking and heating installations.

Baked ham sandwiches, cookies and other delicacies were prepared daily on the electric range and served to the visitors, helping materially to stimulate interest, as many of them had never before tasted food electrically cooked. The electric booth and the demonstrations were in charge of Messrs. G. W. Barker, H. V. Mooney, N. Cruze and Mrs. D. R. Withers.

The gas demonstration booth represented a com-

fortable living room, separated by glass doors from a small compartment containing one hot-air and one hot-water heating unit. By means of this arrangement visitors were enabled to see the nature of the apparatus from which the heat was supplied, the manner in which the control was operated and the small area of floor space required for the in-



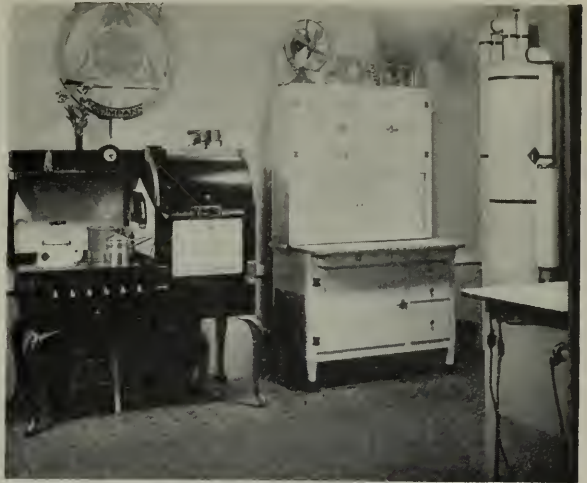
Model of Pit River Plant No. 1.

stallation. The heating units were controlled from the living room. From a Radiantfire, installed in a corner of the room, emanated a cheerful glow and warmth. The appliances were of the most modern type, and their demonstration did much to overcome certain prejudices that still exist among a few persons, caused by the objectionable features of ancient gas heaters, with the result that thousands who visited the booth now have a very fair conception of the true meaning of modern gas heating.

A feature of the display was the lighting of the room, which was done entirely by gas, a method which in these days of electricity is almost a curiosity. Much comment and interest was evinced by this gas lighting as many visitors believed that the attractive fixtures contained electric lights until attention was called to the gas flames.

Commenting on the results attained by the exhibit, Mr. F. H. Pelle, who was in charge of the gas booth reports:

"Only a few days ago the Auditorium was filled with thousands, seeking information on the different wares exhibited by the various concerns. Now that nothing is left of this wonderful exposition, what has been accomplished? To my mind it was a most wonderful method of advertising and a complete success. Every man, woman and child who listened to the story of the exhibitors has gained an education in an



The modern electric kitchen attracted thousands of visitors.

hour which would take years through the reading of advertising matter.

"Advertising of this nature is of the best, because it makes personal contact between salesman and customer and personal contact advertising is the lasting kind.

"In our demonstrations we endeavored to impress upon the public the idea that appliances backed by the "Pacific Service" guarantee mean that these appliances have been proven by us to be the best that the consumer can buy.

"From the standpoint of our booth, 'Modern Gas Heating,' the results have been most gratifying. Many prospects have been closed, and in the coming months we shall feel the result of our efforts in educating the public to healthful heat. We secured seventy-five good prospects, of which five are already closed and the rest pending, so all in all we can call the exposition a real success."

The gas booth and the model electric kitchen were designed by the New Business Department. The model of the Pit river power house was built by the Company's construction forces at Pit river and was first used on the occasion of the annual dinner of the Pacific Service Employees Association last June.



A corner of the gas house-heating booth.

Tidings From Territorial Divisions

East Bay Division

Two more companies have filed articles of incorporation in Oakland. One is the Peerless Motor Company of Ohio, the other, the Berkeley Piano Club, organized for "the study and cultivation of the art of music."

The Automatic Screw Products Company has leased property on the west side of Hollis street, between Park street and the Santa Fe railroad and will operate a first class automatic machine shop, the first of its kind in this district.

Oakland has two new big corporations, capitalized at \$500,000 and \$250,000 respectively. Articles of incorporation were filed yesterday for the Construction Finance Company of Oakland and for the Home Loan Security Company.

The Cleveland Metal Products Company has moved into its own building at Forty-fifth and Hollis streets. This is a one-story concrete building with 30,000 square feet of storage space. The local branch is the distributing agency for the Pacific Coast.

Oakland received another boost in its drive for more industries when the Metal Products Company of America filed incorporation papers with the county clerk. The company is capitalized at \$1,000,000 and will establish large factories to deal in iron and steel manufactured products. Headquarters of the company will be established in Oakland.

This is the season for new records in Oakland Harbor. In twenty-four hours more than two million feet of lumber, 6870 tons of coal and 12,000 tons of general merchandise arrived. What would have been a month's record only a few years ago is now only the business of a day.

The Westgate Metal Products Company opened the first of a chain of electrical appliance stores at Grand avenue and Webster street on October 11th. It is their plan to open similar stores in San Francisco, Los Angeles and Seattle within the next three or four months. This concern has a plant in East Oakland, having a floor space of 75,000 square feet and employs at this time 95 people. In another week the first unit of an addition, 75 x 150 feet, and two stories high, will be ready for occupancy, which will give employment to 25 or 30 additional employees. They have installed the largest drawpress on the Pacific Coast.

The Walnut Grove Creamery Company has recently built a branch plant at 45th avenue and E. 12th street, in order to reduce the cost of milk delivery in East Oakland.

Articles of incorporation were filed in Oakland recently by the American Automatic Lock & Lift Company of San Francisco. The concern is capitalized at \$500,000.

The Fisher Body Company announces that they have started building operations on an Oakland plant to be situated directly east of, and adjoining, the Chevrolet Motors Corporation plant at 73rd avenue and Foothill boulevard. The building, which will be of reinforced concrete and brick, similar to the Chevrolet plant, will be a two-story affair 80 x 680 feet, having an area of 108,800 square feet, and will be completed within ninety days. They will build closed bodies, furnishing all of the sedan and coupe bodies for the Chevrolet's local plant. However, the Chevrolet Company will build their own touring car and runabout bodies. It is estimated that the output of the new Fisher Body plant will run about 15,000 the first year. This company is the largest body building concern in the world.

The National Nut Company of California announces that they have leased a building at 1st and Franklin streets for factory and general purposes. It is a thoroughly modern two-story concrete structure, having 11,250 square feet of floor space, elevator service, spur track, and is convenient to the docks and Southern Pacific Station. This company is a California corporation, chartered in February of this year, doing an importing, wholesaling and manufacturing business in edible nuts and nut products.

The local building movement continues with increasing strength, the permits for September totaling in number 868, with a valuation of \$1,844,439, the new construction entering into this total amounting to \$1,772,573. For the nine months ending with September, the total valuation of permits issued is \$17,496,056, of which \$16,816,310 is represented by new buildings.

Local machine shops, foundries and heavy machinery manufacturers are experiencing the benefit of the present activity in shipping and the revival of interest in mining, the buying of supplies and equipment for both industries being on an increasing scale. J. C. J.

San Joaquin Division

The plant of the Carpenter Cheese Company at Salida, which has been purchased by the Nestle Food Company of New York, is to be opened immediately with increased facilities for the manufacture of condensed and evaporated milk for both domestic and export trade. The domestic brand of evaporated milk made by this company is known as Nestle's Alpine milk and has a wide sale in United States markets. The new owners of this plant also plan to construct a large new building, in addition to the one already on the ground, which will be modern and up-to-date in every detail. The reopening of the Salida milk plant will furnish an assured market for dairymen of the Manteca, Ripon, and Salida districts.

Indications for big development in fruit raising on the west side of San Joaquin

county are shown by the fact that Libby, McNeil & Libby, the big canners of Chicago have made announcement that that company will contract for all the peaches and pears raised on the west side during the next fifteen years, it was stated recently by Secretary Pitney of the West Side Chamber of Commerce at Tracy. The Libby, McNeil & Libby interests are reported to have contracted for 500 acres of peaches with Roy M. Pike of Tracy, and it is also reported that many more acres have been contracted with other property owners in that vicinity. It is expected that the increased activity in the fruit market will mean the erection of two or three new canneries in the west side district within the course of a year or two.

Authorization from the United States Post Office Department at Washington to proceed with plans for construction of Modesto's new post office building on government property at Twelfth and Eye streets was recently received by the Postmaster of Modesto, and accordingly arrangements are under way to proceed immediately with the construction of the new \$25,000 post office building, which is to be a structure of which Modesto can be duly proud. The new post office is to be a one story building constructed of brick, which will provide facilities for the more rapid handling of mail, which have been lacking in the old building, together with a number of additional boxes for rent to private individuals and more convenient and comfortable quarters for the post office employees.

The little hamlet of Copperopolis, in Calaveras County, is to be revived. The Calaveras Copper Company has started work overhauling the machinery, preparatory to resuming work immediately, it is announced. Two years ago, when the price of copper fell, the plant was closed, and Copperopolis ceased to exist. Now, however, the copper company officials announce that the price of copper is sufficiently high to permit the working of the mines at a profit. This revival of the copper mines at Copperopolis will mean increased business for "Pacific Service," with an ultimate load of 2,250 horsepower.

The City of Tracy is contemplating improvements, the cost of which will total \$125,850, according to the report of the City Engineer. This grand total will take care of the installation of a new sewage disposal works, water works extension, paving of street intersections, the erection of a fire house, and the purchase of new apparatus for the south side and the fixing up of the city wells. Bonds will have to be voted to raise the money necessary to carry on these improvements. The proposed program as to water extensions and repairs takes into consideration the installation of a gas engine for standby service in the event the electric motors are out of commission at any time. The plant equipped with both electric and gas service will mean a material reduction in fire insurance rates in Tracy. The City Engineer announces that he has reliable information that the rates will be reduced to such an extent as to pay the cost of the extra installation within three years' time.

One thousand acres of land at Brentwood, Contra Costa County, are being planted to fruit trees by the Kirkman Nurseries Company and Balfour, Guthrie & Company. Apples, prunes and apricots are the fruits to be planted, as well as figs of the Kadota or Clarkadota varieties, and the soil and climate are said to be ideal for the growing of fruit of all kinds. The placing of 1,000 acres in orchards in Brentwood is the biggest boost Eastern Contra Costa County ever received, and heralds the coming of the day when orchards and vineyards will line the district from Antioch, Oakley, Knightsen, Brentwood, Byron and Bethany to Tracy.

A modern ice plant is to supplant the plant of Hales & Symons of Sonora which was recently destroyed by fire, and it will be operated by electricity instead of steam. Construction work has been started on the new plant. Immediately after the fire which destroyed the old plant, the owners began investigations as to the economy and feasibility of installing electric equipment, and were soon convinced of the superiority of electricity over other forms of power. Just what type of electrical machine will be installed has not yet been determined, but it will be of a 10-ton ice making capacity per day with a 20-ton

refrigeration limit. The total cost of the new plant will be in the neighborhood of \$20,000.

The output of the big Whitmore orchards at Ceres, Stanislaus County, during the past season was 1,300 tons of peaches. This production is from approximately 100 acres and about 100 men were employed to handle the crop.

Much interest is being shown in a proposed new irrigation district at Oakley, Contra Costa County, comprising about 15,000 acres of lands between Oakley and Antioch not already included in the Knightsen and Lone Tree Districts in the Tracy section. The suggestion has been made that water be taken from the San Joaquin River at a point either above Oakley or through the natural canal from Antioch south to the State Highway.

A plan for the creation of a civic center in Stockton has been approved by the city council. Under the proposed plan the area bounded by Commerce, Eldorado, Park and Lindsay streets will be used, and the edifices will be the auditorium, City Hall and Library.

Probably the most important feature in connection with the carrying out of the plan is the contemplated filling of McLeod Lake from Eldorado street to a point west of Center street. The council has already started proceedings to secure permission from the War Department to make this fill.

In the final preparation of the comprehensive plan for civic center development the auditorium and the city hall architects have conferred and determined that the style of architecture and design shall be in harmony.

Besides the large park, on which all of the edifices will front, the architects have provided for a smaller park south of the auditorium and a strip of park south of the City Hall. In the central park the architects have planned for a fountain and pool, ornamental walks and ample shade.

L. J. N.

Colgate Division

Pear trees fifty years old, some of them 35 to 40 feet tall, unattended for many years, unharmed by blight that is known to

have attacked them, were visited by Farm Adviser William Harrison recently. They were called to the attention of Mr. Harrison by R. A. Taffender, manager of the big Fleishhacker holdings in Yuba county, at the junction of the Bear and Feather rivers.

In spite of the neglect, lack of cultivation, spraying or pruning, the trees are producing big crops of excellent fruit.

Sutter county's \$4,000,000 peach crop has been almost entirely harvested. Only one peach train goes out each evening at present, and it is growing shorter daily. It will diminish until finally taken off altogether.

The final total of carloads shipped to canneries in the San Francisco Bay region will probably pass 3,800 by a small margin. Each car carries about 15 tons, which would make the total 57,000 tons. They brought \$60 a ton, or \$3,420,000.

To this must be added the tonnage handled at the two local canneries, the California Canning Corporation in Yuba City and the Virden Packing Company in Marysville. The capacity of each is 4,000, and each expects to turn out at least a capacity pack by the time the season ends.

Then, there are the big canneries at Gridley and those at Oroville and Lincoln, in addition to several big ones at Sacramento. All received peaches from Sutter and Yuba counties, and the tonnage will not be less than 2,000.

These 10,000 tons at \$60 a ton will add \$600,000 to the total receipts of the growers, making the grand total \$4,020,000.

Some of the growers received a bonus of \$10 per ton, greatly increasing that total.

The Oswald district alone, through the station maintained there during the shipping season, shipped 1,271 cars in 52 days, or 19,065 tons.

And peaches are but one item in the community's income.

Raisins are now processed at the new plant of the Sun Maid Raisin Association in Yuba City, and the plant is in full operation, stemming, cleaning, packing and shipping choice Sutter and Yuba raisins.

Raisins are coming into the plant at the rate of 125 tons daily and form the biggest deliveries to one plant ever known in the two counties. On account of the weather being so good for drying, the raisins are coming in about three times as fast as was expected. Great quantities are being stored up for processing as fast as the equipment can handle it.

The total receipts are expected to reach 8,000 tons this season.

San Francisco Division

Among the recent power contracts secured by the New Business Department we make mention of the following:

New theatre for moving pictures at Ocean and Faxon avenue. Erected and operated by Devin Brothers.

Haas Brothers have altered three story and basement building at 974 Market street. Candies and light lunches.

Golden Pheasant, 255 Powell street, candies and light lunches.

Virginia Lee Inn, 325 Geary street, candies and light lunches.

Oser Estate Corporation, apartment house, containing 48 apartments, Powell and Pine streets, also garage for each apartment.

Carl T. Esrnst, apartment house, 24 apartments, W/S Leavenworth near Turk.

Moose Building, Market near Twelfth.

New State Building, McAllister street opposite Civic Center.

California Press Manufacturing Company, S/W corner Fourteenth and Folsom streets.

Collins Hencke Company's new building at 620 Folsom street.

Shriners' Hospital for crippled children, block bound by Nineteenth avenue, Twentieth avenue, Lawton and Moraga.

Chanslor & Lyon, new building at Polk and Ellis.

Kruse Apartments, Twenty-third and Howard streets, 30 apartments.

George Sandy, Twentieth and Dolores streets, 25 apartments.

Pacific Embroidery Company's new building at Thirteenth and Mission streets.

California Press Machine Company, Fourteenth and Folsom streets.

National Fibreform Company's new building, Sixteenth and Kansas. The first installation here is about 200 horsepower.

Fink and Schindler, planing mill, 218-68 Thirteenth street, building an addition to their present plant in which they will install 175 horsepower.

J. Devencenzi, 1801 Hyde street, 14 three-room apartments.

Lewis Staff, 1029 Sutter street, 33 apartments.

Anderson Brothers, near Quint on Custer street, planing mill, 200 horsepower.

Gerrard Wire Typing Machine Company, 224-232 Spear street, with 20 horsepower; will increase to 50 horsepower. F. T.

Business is good in the Gas Manufacturing Department. The average daily send-out for the year 1922 will be about 20 million cubic feet. This compares favorably with the average for 1912, which was 12 million per day, and 18 million per day in 1921.

The peak day send-out to date this winter was 23 million on November 4. It is expected that the peak will run close to 35 million in January if the weather is as cold this year as it was last. J. M. D.

IN MEMORIAM

With the passing away of George Thatcher on November, 13, 1922 Shasta Division lost a mighty good friend. He had been a faithful employee of the company for many years and everyone knew, respected and liked George; his smile and good-natured jokes will long be missed around the Redding office. The sincere sympathy of every man and woman in the Shasta Division goes out to the bereaved family.

West Side Division

Four very successful electric range demonstrations were held in West Side Division from November 14-17. The first was held at Los Molinos, November 14, and the others at Gerber, Corning and Wil-

lows on the three nights following. Large crowds were in attendance at all four towns and at least one electric range was sold at each demonstration.

The program was the same at each place. Mr. R. R. Robinson, New Business Superintendent, was chairman. Mrs. Boyd, our popular demonstrator, cooked a complete dinner and explained the cooking features of the range which was a super-automatic Hotpoint-Hughes. Mr. Douglas, of the Edison Electric Appliance Co., Mr. Tompkins, of the Pacific States Electric Co., and A. White, our range salesman, all gave short talks on the advantages of electric cooking and heating. A free drawing for an electric appliance was held in each place. Moving pictures on different phases of electricity were also shown each evening.

Altogether 1213 people attended these demonstrations and those who came are telling those who didn't all about the electric range. At Corning 525 people, or one-third the population of the town, turned out. This town will soon have more electric ranges installed than any other of its size in the valley.

That the meetings were well worth while is evidenced by the increase in the number of electric range sales.

IN MEMORIAM

It is with the deepest regret that we report the death of Charles R. Eaton, Chief Draftsman in the department of Gas Construction and Operation, who died of pneumonia on November 22, 1922, after an illness of a week and a half. Mr. Eaton was born in Placerville on February 28, 1889, and entered the employ of Pacific Gas and Electric Company March 15, 1922, as mechanical draftsman, and by close application to his work soon gained recognition and promotion. He was very popular and well liked among his fellow workers who are deeply affected by his sudden death. Our sincere sympathy is extended to his sorrowing family.

PACIFIC GAS AND ELECTRIC COMPANY

A California Corporation

Managed by Californians

Operated by Californians

"PACIFIC SERVICE" REPRESENTS (AS OF DEC. 31, 1921):

8,213 employed in all departments.

\$183,000,000 capital invested in gas, electricity, railroads and water plants.

54,000 square miles of territory in which it operates—an area greater than that of England and Wales.

18,204 stockholders, December 31, 1921.

36 counties of the State in which it transacts business.

599,113 consumers served with gas, electricity, water and steam as of December 31, 1921.

1,800,000 people served in 36 counties, which is over 50% of the State population.

233 cities and towns in which it supplies service directly and through other companies.

\$13,205,438 annual wages paid employees in 1921.

\$2,630,890 taxes, State of California, for 1921.

\$634,445 taxes, Federal Government, for 1921.

308,244 horsepower developed in 28 electric water-power plants.

173,592 horsepower developed in 4 electric steam plants.

481,836 total horsepower developed in 32 plants.

1,021,820,689 K. W. hrs. sold in 1921. This is equivalent to the effort of 3,400,000 men.

11,483,551,100 cubic feet of gas sold in 1921.

19 gas plants.

47,100 miles of wire used in distributing electricity, which could be strung around the world over $1\frac{1}{2}$ times.

3,168 miles of mains used in distributing gas, approximately the distance between San Francisco and New York.

1,100 miles of mains and ditches used in distributing water.

1,300 miles of track of street railways supplied with electric power.

64,080,000,000 gallons of water stored in 98 lakes and reservoirs. This amount of water would supply the city of San Francisco at the present rate of consumption for approximately 5 years.

93,501 acres of land owned in California—over three times the area of San Francisco.

233 parcels of property owned in cities and towns.

3,713,717 barrels of California oil used in 1921.

149,228 horsepower in agricultural motors depending on "Pacific Service."

455,380 horsepower in mining, electric railways, manufacturing and other motors depending on "Pacific Service."

52,500 street lamps, gas and electric, lighted by "Pacific Service."

5,234,607 incandescent lamps nightly lighted.

1,044,217 horsepower connected to system.

PACIFIC GAS AND ELECTRIC COMPANY

Head Office: 445 Sutter Street

San Francisco

Branches in all principal cities and towns of thirty-six counties of North Central California.



Pacific Gas and Electric Company Furnishes

"PACIFIC SERVICE"

TO OVER 622,000 CONSUMERS OF

GAS ♦ ELECTRICITY ♦ WATER ♦ STREET RAILWAY

1,715,959 Total Population Served in Thirty-six of California's Counties

CITIES AND TOWNS SERVED BY COMPANY

	DIRECTLY		INDIRECTLY		TOTAL	
	No.	POPULATION	No.	POPULATION	No.	POPULATION
Electricity	170	1,117,541	61	156,411	231	1,273,952
Gas	58	1,128,216	2	8,600	60	1,136,816
Water (Domestic)	18	61,719	8	15,488	26	77,207
Railway	1	65,908			1	65,908

Place	Population	Place	Population	Place	Population	Place	Population
Alameda.....	28,806	El Verano.....	400	Meridian.....	200	San Leandro...	5,703
Albany.....	2,462	Emeryville....	2,390	Millbrae.....	300	San Lorenzo....	500
Alvarado.....	1,000	Escalon.....	600	Mills.....	400	San Martin....	250
Alviso.....	517	Esparto.....	200	Mill Valley....	2,554	San Mateo.....	5,979
Amador City..	377	Fairfax.....	250	Milpitas.....	300	San Pablo.....	3,000
Anderson.....	750	Fairfield.....	1,008	Mission San		San Quentin...	500
Angel Island..	500	Fair Oaks.....	300	Jose.....	500	San Rafael....	5,512
Antioch.....	1,936	Fall River Mills	300	Modesto.....	9,241	Santa Clara....	5,220
Aptos.....	300	Farmington... Felson.....	300	Mokelumne Hill	900	Santa Cruz....	10,917
Arbuckle.....	900	Folsom.....	2,000	Monterey.....	5,479	Santa Rosa....	8,758
Atherton.....	500	Forestville... Fresno.....	250	Morgan Hill... Mountain View	646	Saratoga.....	500
Auburn.....	2,289	Fresno.....	45,086		1,888	Sausalito.....	2,790
Barber.....	500	Gilroy.....	2,862	Mt. Eden.....	200	Sebastopol....	1,493
Belmont.....	375	Glen Ellen....	1,000	Napa.....	6,757	Shasta.....	200
Belvedere....	616	Gonzales.....	500	Nevada City... Newark.....	1,782	Shellville.....	200
Benicia.....	2,693	Grass Valley..	4,006		500	Sheridan.....	250
Ben Lomond...	400	Gridley.....	1,636	Newcastle....	750	Smartsville....	300
Berkeley.....	56,036	Grimes.....	500	Niles.....	1,251	Soledad.....	400
Bigsby.....	683	Groveland....	500	Novato.....	1,000	Soquel.....	400
Bolinas.....	200	Guerneville... Hamilton City.	800	Oakdale.....	400	Sonoma.....	801
Brentwood....	400	Hammond.....	250	Oakland.....	216,261	Sonoma.....	1,684
Broderick....	700	Hayward.....	3,487	Oakley.....	200	South San Francisco	4,411
Burlingame...	4,107	Hercules.....	373	Occidental....	600	Standard.....	500
Burlingame...	350	Hillsborough..	931	Orland.....	1,582	Stanford Uni-	
Byron.....	350	Hollister.....	2,781	Oroville.....	3,340	versity.....	2,700
Campbell.....	600	Honcut.....	500	Pacheco.....	300	Stockton.....	40,296
Capitola.....	300	Hughson.....	500	Pacific Grove..	2,974	Suisun.....	769
Carmel.....	638	Ione.....	1,000	Paradise.....	5,900	Sunol.....	350
Cement.....	1,000	Irvington.....	1,000	Patterson.....	694	Sunnyvale....	1,675
Centerville... Ceres.....	1,900	Jackson.....	1,601	Penn Grove....	200	Sutter City....	250
Chico.....	9,339	Jamestown....	750	Perkins.....	300	Sutter Creek..	920
Colfax.....	573	Kennett.....	464	Piedmont.....	6,226	Tehama City..	196
College City...	250	Kenwood.....	300	Pike City.....	4,282	Tiburon.....	400
Collinsville...	200	Keawick.....	200	Pinole.....	967	Tracy.....	2,450
Colma.....	1,846	King City.....	1,048	Pittsburg.....	715	Tres Pinos....	300
Columbia.....	200	Knights Ferry.	200	Pleasanton....	4,715	Tuolumne....	1,500
Colusa.....	912	Knights Land..	400	Port Costa....	991	Turlock.....	3,394
Concord.....	300	La Grange.....	200	Princeton.....	300	Vacaville.....	1,254
Cordelia.....	1,449	Larkspur.....	612	Red Bluff.....	3,104	Valejo.....	21,107
Corning.....	607	Lathrop.....	600	Redding.....	2,962	Vineburg.....	200
Corte Madera..	200	Lewiston.....	200	Redwood City..	4,020	Wineburg.....	200
Cotati.....	200	Lincoln.....	1,325	Richmond.....	16,843	Warm Springs.	250
Cottonwood...	500	Live Oak.....	300	Rio Vista.....	1,104	Waterford....	250
Coyote.....	200	Livermore....	1,916	Ripon.....	500	Watsonville..	5,013
Crockett.....	1,500	Lomita Park... Loomis.....	600	Riverbank.....	200	Wheatland... Williams.....	435
Crow's Landing	300	Los Altos.....	500	Rocklin.....	643	Willows.....	2,190
Daly City.....	3,779	Los Molinos... Madison.....	2,317	Rodeo.....	300	Winters.....	903
Danville.....	400	Manteca.....	1,286	Roseville.....	4,477	Woodland....	4,147
Davenport....	300	Mare Island... Martinez.....	600	Ross.....	727	Woodside....	300
Davis.....	939	Maxwell.....	500	Sacramento... Salinas.....	65,908	Yolo.....	350
Decoto.....	300	Mayfield.....	1,127	San Andreas... San Anselmo...	4,308	Yuba City....	1,708
Del Monte....	300	Menlo Park....	900	San Bruno.....	1,183	Total Cities	
Denair.....	200			San Francisco..	2,475	and Towns... Population ..	1,347,844
Dixon.....	926			San Jose.....	1,562	Total Popula-	368,115
Drytown.....	200			San Juan.....	506,676	tion Served..	1,715,959
Duncan's Mills	250				39,642		
Durham.....	750				350		
Dutch Flat....	500						
Eldridge.....	1,505						
El Cerrito....	350						
Elmira.....							

Unmarked—Electricity only.
 1—Gas only.
 2—Gas and Electricity.

1—Gas, Electricity and Water.
 2—Gas, Elect. and St. Railways.
 3—Electricity and Water.

1—Electricity supplied through other companies.
 2—Gas supplied through other companies.
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The world's highest voltage transmission line.

The world's greatest network of high voltage transmission lines.

The world's second largest generator of its kind.

The second largest producer of hydro-electric energy in the world.

The second longest high voltage aerial span in the world.

Operates 28 hydro-electric plants.

Operates 4 steam electric plants.

Operates 19 gas plants.



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Twenty Thousand Investors in Pacific Gas and Electric Company First Preferred Stock

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SAN FRANCISCO

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MAGAZINE

PUBLISHED MONTHLY BY THE PACIFIC GAS AND ELECTRIC CO SAN FRANCISCO



Vol
14

DECEMBER 1922

No
7

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Pacific Service Magazine

Volume XIV



Number 7

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The Sacramento River above its confluence with the Pit; Mt. Shasta in the distance.

PACIFIC SERVICE MAGAZINE

Volume XIV

DECEMBER, 1922

Number 7

Greetings to All in "Pacific Service"



If the spirit prevailing at this Yuletide season could only be maintained throughout the coming year, what great and glorious results would be achieved by mankind! Hatred, bitterness and jealousy banished, peace and good will enthroned, it is indeed a consummation devoutly to be wished. May we not well ask ourselves the question—why not?

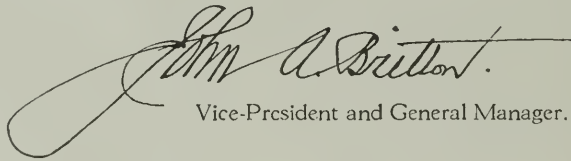
For more than nineteen centuries the story of the wise men led by a star to the manger bed has been sustained by an implicit and abiding faith in the holiness of a Man who brought into the world the message of peace and good will.

Nations acclaim each recurring anniversary of His birth—the holly and the evergreen are hung in His memory and His gift to mankind is represented each year by gifts one to the other. All the world tells in song and story His life and His deeds and for days we live in an atmosphere of sacredness, with high resolves of better purposes and aims—why not endeavor to sustain them through the year?

"Glory to God in the highest and on earth, peace—" is not a meaningless phrase, it has guided millions of souls to better thoughts, to the preservation of ideals; it has cheered the sick and comforted the dying; in the world of practical things it has been a staff upon which to lean, for it makes for better thoughts, higher aspirations and nobler ideals.

Let the new year then be one of great promise, even as the past year has been one of great realization. May it bring to one and all that true happiness and contentment which comes from service well performed.

A Merry Christmas and Happy New Year from one who enjoys the privilege of association with the men and women of "Pacific Service."

A handwritten signature in cursive script, reading "John A. Britton". The signature is fluid and elegant, with a long, sweeping underline that extends to the right.

Vice-President and General Manager.

San Francisco
Christmas, 1922

Pit River Canyon: A Story of the Long Ago

By J. R. SCUPHAM

(Reprinted from *Overland Monthly*, issue of December, 1875)



J. R. Scupham, at the age
of 81 years.

The author of this narrative of the long ago in California is a native of Perthshire, Scotland, where he first saw the light of day in 1841. He came to America while very young and was educated as a civil engineer. He received his graduation papers just at the commencement of the Civil War, and entering the service of the Federal Army was appointed an officer of volunteer engineers. As a first lieutenant in the second division of the 15th Army Corps, under General Sherman, he assisted in the capture of Fort McAllister, Georgia, whereby the way was opened to the sea and supplies received from the vessels lying outside. Lieutenant Scupham also assisted in the relief of Knoxville, Tenn., on this occasion as an artillery officer.

The young man passed through other experiences in the south, one of these being the running of the Muscle Shoals rapids, on the Tennessee river, brought to the public attention in recent years through the electrical development project whose construction has been undertaken by the United States government. Scupham's purpose, however, in running these rapids was to test them for navigation purposes. The distance run was 25 miles.

He served through the war, and at its close came to California and entered the service of the Central Pacific Railroad as civil engineer. He was then only 19 years of age. He assisted in exploring the Sierra Nevada and Rocky Mountain passes, and locating lines for the railroad through the valleys of the Pacific Coast. In connection with this work he surveyed the Pit river canyon in 1875 as a suggested route for the Oregon branch of the railroad between

Sacramento and Portland. The question to be determined was on which side of Mt. Shasta should the line be built, east or west. Mr. William Hood, the famous civil engineer of the railroad company, made the survey to the west, and young Scupham was employed in the survey to the east of the mountain. It was during this survey that the adventure described in the narrative here reproduced took place.

Mr. Scupham had his boat built at Fall River Mills. In his party was the German scientist, Lieber, whose unfortunate death from drowning was a sad incident of the adventure. He made the trip down the river from Fall River Mills to Copper City. At that time the region was totally unexplored. There were hardly any residents within reach of the river banks but Indians. Joaquin Miller, the famed poet of the Sierras, lived there for a while but had gone before the Scupham party got there. The year following this Pit river adventure Mr. Scupham was sent to Philadelphia as Commissioner from California to the Centennial Exposition.

Mr. Scupham, despite his advanced age, is hale and hearty, and in his cozy home in Oakland still pursues his vocation of mining engineer. He is as alert as a young man and his memory is excellent. In a conversation with the editor of PACIFIC SERVICE MAGAZINE a few months ago he recalled various experiences of the Civil War days with a completeness of detail almost astounding. It may be said also, that the adventure which he described for the *Overland Monthly*, nigh half a century ago, presents itself to his mental vision as vividly now as it did then.

EDITOR PACIFIC SERVICE MAGAZINE.

Few persons who see the turbid, sluggish waters of the Sacramento in the lower part of its course know that for more than 200 miles it is a bright, clear, dashing stream, flowing through wild and romantic scenery. For, like many large rivers, it is shorn of half its glory by being called by another name in the upper part of its course. Pit river, rising in the very northeastern corner of California, in

the mountains west of Surprise valley called Warner's range, and flowing to the southwest for over 200 miles, is the true Sacramento.

There is much of early romance connected with this river. Cutting, as it does, right through the Sierra Nevada mountains and coming from the east, the early explorers accredited it with being the continuation of the Humboldt and the

outlet of Utah lake. Under the name of Buenaventura, it was searched for by Lieutenant Fremont, in his first expedition to this coast, all along the eastern base of the Sierra Nevada.

The origin of the name "Pit river" is uncertain. In the Government explorations it seems to be assumed that it was named after the great English premier, as Mount Pitt in Oregon undoubtedly was; but a general impression prevails that it was named from the fact that the early settlers found upon its banks pits dug by the Indians, in which to catch grasshoppers and game.

Where the Pit river cuts through the Sierra is the "canyon." This includes the portion from the mouth of Fall river to the Sacramento, about a hundred miles by the windings of the stream. Though not a canyon proper throughout its whole extent, this portion is so full of canyons and obstacles that it has never been traversed consecutively by anyone who has told or left a record of the trip. Still, the canyon of Pit river was not altogether terra incognita. At some points hundreds have crossed it. The former town of Pittsburg, on Squaw creek, had its mining excitement once, and its votaries all crossed the Pit river in the canyon. In its deeply sequestered nooks some half-wild white men have consorted with the Indians. But no one cared to pass along the difficult precipices and jungle-like slopes to make the long journey through the canyon.

Last August, 1875, it became my duty, in the way of business, to make a reconnaissance of this canyon. Knowing it to be impassable to such animals as horses or mules, my first plan was to take but one companion with me, in order to have as few impediments as possible, and to hire Indians to pack what we had on their backs along the river bank. Redding, the terminus of the California and Oregon Railroad, is reached in about seventeen hours from San Francisco, and from there the stage started with us a little after midnight on our long moonlit ride. The beauty of hill and forest and river by moonlight was at once impressive as we emerged from the woods down on the banks of the Sacramento at Reed's Ferry. Between the dark, shadowy sycamores the glittering river, whirling and

gurgling, swept by without any intimation of the dangers and hardships and death which awaited us along its waters. Steeped in the full enjoyment of the scene, and free from forebodings of evil, we lumbered through the low hills on the east bank of the river under the shadows of the oaks and pines and past the dark thickest of manzanita, the night-wind just strong enough to blow the dust away and bring that coolness and sense of freshness befitting the moonlight. Past the gravelly flats of Buckeye, where, in former days, miners made their pile or lost their hopes of fortune, and where still some hopeful ones struggle and toil. Presently the hills grow higher, and beyond Basser's, where we changed horses, steep slopes of what Whitney tells us is carboniferous limestone overlook the road. Through these hills we wound; then up steep summits, from the slopes of which we caught dim, weird views of moonlit forests; down into dark shady valleys, until at last we descended the longest slope of all and found ourselves on the banks of the Pit river at Smith's Ferry.

The United States Fish Commissioners' camp, four miles above on the McCloud river, was our destination, and there were the Indians we hoped to employ. So we had another long winding range to cross, and must descend into another valley of shadows before we could find the McCloud dashing and roaring down below the road. Soon we saw the white tent and new board houses of the "fishery" slumbering in the moonlight, and just beyond them, towering high in air, the spectral range of limestone mountains that wall in the river above. The stillness of death, or its brother, sleep, overhung the camp, and not disturbing it, we spread our blankets and were soon numbered among the sleepers.

At the fishery next morning all was bustle and preparation. Mr. Stone was arranging to gather double his former amount of salmon-eggs. In the prosecution of my own plans I encountered my first difficulty. The Indians I expected to accompany me were uncertain, unwilling, and taciturn. While Mr. Lieber, my companion, was trying to induce the splashing salmon to bite at his hook I went down to see the Indians in their camp. Crossing on the dam constructed

by Mr. Stone, and following down the river a winding trail among the sand and boulders for half a mile, under a group of oaks I came upon the rancheria. All around the brush-wood was covered with salmon, split open and drying in the sun. A circular structure of willow poles sheltered a group of Indians. In the foreground four "bucks" were playing cards. Half a dozen more were sitting back of these watching the game. Still farther in the background some half-dozen mahalas were busy at domestic occupations. On approaching this little group the barking of a small dog was my only greeting, and the glances of the Indians were half-averted, so that it was necessary for me to speak at once.

Indians have no word of greeting but watch a stranger who comes up and sits down among them in silence, until little by little they find out his purpose and where he comes from. When they get up to leave they say, "I am going;" and the answer comes, "Go." On this occasion I could not wait for all this ceremony, and so spoke up at once:

"I want to see Jim."

"I am Jim," said one of the cardplayers, in very good English. "What do you want?"

I looked at him a moment. A short thick-set young Indian, with glittering black eyes and rather a black but good-looking face. "I want you to go with me up Pit river."

Immediately all eyes were turned on me, and Jim asked: "Are you the man Mr. Stone tell me about?"

"Yes, I am the man. Are you ready to go with me?"

After some hesitation and talk with the other Indians, he answered: "I can't get Indians to go."

After spending much time with them and a great deal of talk, the reasons for their reluctance were at last elicited. The canyon, they said, was very rough, and without any continuous trails. Two tribes of Indians occupied the canyon. I was among the Wintoons. The upper half of the canyon was occupied by the Pushoosh. These tribes were unable to understand each other. Long hostility had left them still jealous of each other's encroachments and the hunter of either tribe that followed his quarry into the territory of the

other was himself in danger of being made game of at any moment. I argued that they would be safe from the Pushoosh while with me, and that, though the way was rough, we would make short journeys and get through.

At last, for the compensation of a dollar per day each, three of the Indians agreed to take my camp through, and would be on hand at the fishery early next morning. Early enough next morning our Indians came; our camp was ferried over the McCloud and packed up the long winding trail through groves of oak-trees and thickets of manzanita, where wild pigeons were feeding, and quail with their young broods were parading in great numbers. Over the crest of limestone; then down, down, through jungles of ceanothus and thickets of buckeye to the banks of the Pit river; then up along the riverbank to near the mouth of Squaw creek, where we made our first camp.

That night we lay down to sleep full of pleasant anticipations. We seemed to have come into a land of beauty, of mountain, rock and river. We were well equipped for our long trip, and this first day found us well supplied with game. Morning dawned with a different aspect of affairs. During the night two of my Indians had deserted and Jim sat solitary and moody beside the crackling camp-fire. A promise to take him with me eventually to San Francisco had kept him faithful, but the night's reflections had given him another idea. He would not go unless he could take his young wife, Hilda, along. In this dilemma I sought advice of Doctor Silverthorn. The doctor is one of those early pioneers who came into this country on the flood-tide of the gold-fever, and was left stranded in one of the farthest nooks to which the argonauts attained. He adapted himself to circumstances, took a daughter of the forest to wife and made a home on the banks of Pit river. Here he established a ferry and built a toll-road when Pittsburg was a thriving mining-camp. And when the camp was deserted and that occupation gone, he raised grapes and traded with the Indians. A gray-haired and gray-bearded man, erect and vigorous and full of stories of combats and adventures with Indians and grizzlies. The doctor's tall, dark-eyed young

son ferried me over, and the doctor himself was ready with an expedient. It was useless, he said, to try and get Indians to pack us up the river. But he could take us, with Jim and his mahala (whom he advised us to engage), in his wagon round by the stage-road to Fall river, at the head of the canyon, where we could get a boat, in which he judged it would be practicable to descend the river. I had already been inclined to adopt this plan, and now decided to do so. I hastened across to have the camp packed up and make Jim glad with permission to take his Hilda with us. So in spite of our disappointment, it was a merry party that rattled past Woodman's in the doctor's new wagon.

Our route lay up Cow creek, over the excellent grade built by the patrons of the new mining camp. As the shadows of evening crept up the hillside we passed shafts, dumps, and prospect-holes, all showing the freshness of recent work. Right on the road workmen are grading out a place for the furnace of the "Afterthought," a mine that is filling its owners with golden dreams. The smelting furnaces where Mr. Peck is successfully turning his copper-ore into mat are next passed. Several times we are stopped where some dusty miner steps into the road, brushes his hat back from his glowing face and holds up his specimen, taken out that day, for our inspection. Splendid specimens they were, of copper, silver or gold ores. On a more lonesome part of the road two deer crossed in front of us, but got away into the thicket before we could get a shot at them. Darkness compelled us to camp on the bank of Cow creek, and Jim and Hilda showed their usefulness in camp by placing a good supper before us.

All day on the morrow we were climbing higher and higher into the mountains. We soon entered the region of the fir, the sugar-pine, and pitch-pine. The blue valley quail gave place to the more handsome mountain variety, and many a specimen of both Mr. Lieber secured. At evening we were tramping through the still forest of great firs and sugar-pines, looking for grouse and gray squirrels. It would be impossible for me to convey to those who have not witnessed them an idea of the

grandeur of these forests. At an altitude of 5,000 to 6,000 feet all these conifers reach their grandest proportions. Many a symmetrical tree shoots up from the ground in a mighty column eight to ten feet in diameter. Among these grand trees, beside a mountain spring, we camped, to be serenaded by the great owls until a shot brought one from the dark tree-top, another specimen for my taxidermist friend.

Next day we soon left the verdure of the western slope behind us, and descended to the sagebrush-covered valleys and lava ridges of the eastern slope. At night we camped in Fall river valley. Next day the camp was sent with Mr. Lieber to Miller's Bridge, six miles below the mouth of Fall river, while I gave my attention to procuring a boat. Finding none suitable I had one built. In two days the *Fall River* was launched, the best and stanchest skiff ever seen in that country.

Fall river valley, like Big valley and Klamath lake valley, is one of those plateau basins that have been inland seas or lakes for eons, probably before reaching their present elevation. An infusorial marl exposed in Big valley and Burney valley, formed during this time, is several hundred feet in thickness. The lava-flow covering them all is of a much later period, or, rather, of later periods, for several distinct overflows can be noticed. The present river-channels seem to have been established before the later lava-flow. The effect, in many cases, has been to fill up the channel for two-thirds or more of its length and by that means compel the stream for that distance to be subterranean. In this manner many branches of the Pit river only come to the surface within a mile or two of their outlet. Fall river lake bubbles up in the middle of the valley from subterranean streams of this kind, as if it were one giant spring; and the river flows out of it full-sized, deep, and broad on its short but winding course to the Pit, into which it plunges over beautiful falls that, the denizens claim, form the "finest water-power in the world."

Farmhouses are scattered all through the valley, and at the falls a little village has sprung up about the fine grist-mill and saw-mill of Winters & Cook. Thousands of dollars have been expended on

these structures and the bridges and roads leading here. These men are martyrs to their faith in the natural advantages of this locality. Religion and science have their martyrs; so, too, has civilization. The man who, recognizing the wants and advantages of a district, risks his wealth in placing needed improvements there—risks it in an almost hopeless cause—risks and loses—is as much a martyr as if he suffered for some dogma or idea. While the wail of the lost spirit often is "Too late," the wail of these martyrs is "Too soon." The improvements may be wanted and the locality well adapted for them but if population is lacking, cui bono? But there is an end to the struggle of our pioneer martyrs. If they can only hold out a little longer, humanity with its wants and wealth will soon fill these beautiful valleys.

At Captain Winter's mill our boat was built; but as the canyon immediately below this is full of rapids, I had it carried in a wagon six miles over the road to Miller's Bridge, where Lieber and the Indians were camped. Right glad I was to see them again, and I am sure they were equally glad to see me and to feel that our explorations could now begin in earnest. Mr. Lieber had shot several species of birds new to him. Jim inspected the screws and calking of the boat, as it lay in the wagon, with a critical eye, and Hilda looked up from her culinary work at the camp-fire with a broad smile of welcome. On launching our boat we found it to possess all the qualities of stability and ease of management desired, so we determined to pack up and make a short trip that day.

I had previously explored the canyon between here and the mouth of Fall river. Immediately below the mouth of Fall river, for some ten miles or more, the Pit river winds, roaring and rushing, through a canyon of immense depth. Where it is deepest, and cut almost vertical for a thousand feet, a beautiful sample of a mountain section is presented. Above the talus at its base rises a great wall of sandstone and slate, the strata, distinctly visible, forming a great arch in this one wave of flexure. Half-way up the rhyolites begin, layer after layer marking different periods of eruption and showing an enormous depth of lava-flow, even high

on the mountain. The graded road at points winds along the very edge of this canyon and gives glimpses down into its yawning depths.

While we were packing up at Miller's Bridge a band of Pushoosh came dashing up on their ponies to the evident disquiet of our Wintoons. From the impudent bearing of these braves it was evident that only our presence prevented them from annoying Jim. I asked Jim what they would do if I was not there. "Maybe steal the poota" (woman), he said. In spite of this interruption we were soon packed and abroad of our boat, floating under the bridge and down the rapid current beyond. As we found ourselves gliding so swiftly among the bright dancing waves we could not repress a cheer, which was answered from the bridge just as a bend of the river hid it from our sight.

Round willowy bends and under over-arching oaks and sycamore we glided, now fast, now slow, as the current flowed, until at last we heard rapids roaring ahead, and our boat was to be tried. Not overconfident as yet, we ran ashore, and I went ahead to reconnoitre. Crashing through the brush into a sharp concave bend, I found the river roaring, a white mass of foam among dark lava boulders. The scene was wild and grand enough, but terrible when I thought that we must go down through those boiling waters. This is what I had been warned against, and I had laughed at the warnings, but now I must go through it. While I watched the white flakes of foam leaping up against the black rocks, Jim pushed his way through the brush and stood beside me.

"Pooty bad place."

"Yes, Jim; very bad."

"Have to let her down with the rope."

The idea was an inspiration. I felt relieved at once. For this time, at least, the dangers of the mid-channel might be avoided.

"Yes, Jim we will let her down with the rope. Let us go back."

In a short time it was accomplished, by clambering along the slippery rocks, fending her off from the sharp angles, holding to the bight of the straining rope, until at last we were through it all safe, though drenched.

Once more all embarked, and we went

floating down the more gentle current below. Now we were passing where the river had cut through an ancient lake basin, and the cliffs on either side were the while infusorial marl—chalk, as the people here call it. It has a curious and not pleasant effect among the green herbage. The dust is white, fine, and light, powdering everything. Cattle, and even the scampering rabbits, stir up a cloud of it as they pass. For twelve miles the river traverses this marl.

As we float noiselessly down in mid-channel we take by surprise many of the wild denizen of the river. Flocks of ducks are overtaken, and some fall before Lieber's gun. A mink, watching us from the river side of a clump of willows, is the next victim. As evening came on we went ashore on a little island and there made our camp. By this time we had gained confidence in the seaworthiness of our boat, and next morning we determined to try the mid-channel passage through the rapids we heard roaring below.

Hilda was set ashore to walk across the bend; everything was tied down in the boat. Lieber took his place in the bow, Jim amidships, and myself in the stern. We had fully discussed the course to be pursued. No matter how swift the river ran we must all paddle hard, so as to get headway in the swiftest current to enable us to steer through among the rocks. With this understanding we moved down the centre of the river, toward where it fell away roaring down among the rocks. Swifter and swifter we shot along, the water now foaming among the bowlders in-shore; and now, as we pitch down the slope of the rapid, the boiling foam-waves seem to leap in chaotic confusion all over the channel in front. But a steady eye can see a narrow path of darker water among the breakers. With arrow speed we enter it and, partly by steering, partly by being fended off by the cushion of water that boils back from the rocks, we get through, and shoot out through the heaving slopping waves below the rapid, our boat full of water but our hearts full of triumph at our success. Lower down we passed the mouth of Rising river, coming in from the left, and I landed to inspect it.

A little way up I saw the dam built by the Indians to impede the ascent of the salmon, and the little foot-bridge of poles

where they stand to spear the salmon struggling over the impediment. Less than four miles above the river rises up from under a bluff of lava and in its short course is a spawning-ground for most of the salmon that ascend the Pit. A little farther down we pass Thomas' Ferry and enter on the unexplored canyon. But first we pass the mouth of Burney creek, rushing down through a portal of dark lava. This is a stream of rare interest. Like Rising river, it comes up from under the lava a short distance above. It has a surface channel, but that channel runs dry toward the close of summer. Two miles above where it enters the Pit it plunges down in a water-fall, in many respects the most beautiful in California.

The falls of Burney creek are very difficult to describe. On the left of a level overgrown with yellow pine, flows the creek. As you follow it down along its banks it begins to rush and roar into a rapid; then it divides to embrace a little isle-like rock, and disappears in space. As you walk to the edge you find yourself looking down into a great amphitheatre-like chasm, about 150 feet deep, the sides and slopes of which are blocks of dark lava, with here and there a tall fir-tree planted among them. Into this abyss the creek plunges. Coming round in front, where you can look back upon it, you see that the water from above, which you have followed down, is but a small part of what is falling into the deep blue pool beneath. Like the two ends of a white scarf, it waves to and fro in front of the dark rocky wall on either side of a green buttress of moss-grown rock, the top of which is the islet we have seen above. Half-way down the fall a strange phenomenon appears. For more than a hundred yards along the face of the rocks, making an arc of nearly half a circle, the water gushes out and tumbles down in a white spray. This is, in fact a second rising of the river, at the base of the oldest lava-flow and in the vertical face of the cliff. The whole effect is at once strange and beautiful. Only on the artist's canvas could you get an adequate idea of it. Let us hope that some time soon a Hill or a Keith will find the spot. The stream is well stocked with trout, and is quite tempting to the angler.

(To be concluded)

Mammoth Gas Holders Will Guarantee "Pacific Service" to Consumers in the Bay Cities

By W. S. YARD

Vice-President in charge of Gas Construction and Operation.

Foundation Completed on Ten Million Foot Holder for San Francisco

Company officials, division managers and a large number of employees from the head office and the San Francisco Division met at Army and De Haro streets at eleven o'clock on November 21 to witness the lowering of the steel bottom for the new ten million cubic foot Army street gas holder. The bottom was lowered into place in thirty seven minutes by the aid of two hundred and thirty-eight men operating the lowering jacks.

At the present time there are only six holders of this size in operation in the United States, three in New York and one each in Chicago, Baltimore and Los Angeles. New York also has in operation two holders of fifteen million cubic foot capacity, these being the largest holders in this country at the present time. The rapidly increasing demand for gas service in San Francisco has made necessary the construction of the Army street holder and upon its completion, this city will rank with the largest of the country in its gas facilities.

The new holder will weigh one hundred and thirty-nine million pounds when completed and ready for operation, including sixteen million gallons of water, required to fill the tank in which the holder lifts are sealed. To support a structure of such enormous weight, a firm foundation was required and the site selected on the west side of Army street near De Haro, opposite the San Francisco Detention Hospital, permitted the erection of the holder on solid rock. In addition to a favorable foundation site, this was also the only property available near the Potrero gas works large enough to permit the erection of the holder without encroaching on public streets. It is but a short distance from the holder site to the center of the Mission District which is one of the largest gas consuming sections of the city. This will permit the serving of this territory directly by low pressure from the holder.

The western part of the holder site, adjacent to the Western Pacific tracks, was formerly the location of the Ocean



In the beginning of construction, excavating for the foundation.



It required 238 men with jacks to lower the enormous base to its foundation.

Shore Railroad shops and was fairly level. The eastern section of the property was covered by a steeply sloping hill of serpentine rock extending to a height of forty feet above the foundation and thirteen feet above the grade of Army street. After considerable study it was finally decided the most economical foundation could be constructed by establishing the top of the holder foundation approximately on the same level as the Western Pacific tracks on the western side of the property. This made necessary the excavation of approximately forty-five thousand cubic yards of rock, and on August 3, the H. C. Vensano Company, contractors, commenced operations with two steam shovels and a fleet of trucks. The north half of the proposed foundation site had been filled in with loose material which had to be removed. This required an excavation varying in depth from one foot along the center axis of the foundation, at right angles to Army street, to a depth of twenty feet on the outer ring. After the bed rock had been stripped of this loose material the concrete walls were poured and the rock excavated from the south half of the foundation was used

for back-filling between the walls. A series of reinforced concrete beams were laid at right angles to and supported by the walls. An eighteen-inch reinforced concrete slab was then poured over this structure and the north half of the foundation was completed.

The construction of the south half of the foundation was much simpler, the bed rock extending above the foundation grade. It was necessary only to remove the overlying rock to six inches below the proposed grade and pour a six-inch concrete slab, tying into the completed north of the foundation. This work was finished on November 5th and the foundation turned over to the Bartlett Hayward Company to proceed with the assembling of the tank bottom. The construction of the foundation required one hundred and sixty-three carloads of material, consisting of nineteen carloads of cement, forty-eight carloads of sand and ninety-six carloads of gravel. In addition one hundred and twenty-five tons of reinforcing steel were used and eighty-six thousand board feet of lumber were required in forming of the walls and beams.

The Bartlett Hayward Company, upon

completion of the six million cubic foot holder in Oakland, moved their equipment to the Army street site and began to prepare for the erection of the ten million foot holder. Before the foundation was completed the steel for the new holder began to arrive from Baltimore by boat, and on November 6th the laying of the bottom began. The bottom sheets, five-sixteenths of an inch in thickness, were assembled and bolted together over the entire area of the foundation, which is 275 feet in diameter. The bottom thus assembled is supported by blocking about three feet above the foundation to permit the riveting, caulking and painting of the underside of the tank. Riveting then commenced and within two weeks' time the great steel disc, 59,500 square feet in area, was completely riveted, painted, caulked and ready for lowering. Two inches of dry sand were spread evenly over the foundation to form a bed for the bottom when lowered and to prevent the rivet heads from bearing directly on the concrete foundation.

The bottom being completed, the

special lowering jacks were put into place, two hundred and thirty-eight of which were spaced equi-distant about the circumference and over the entire area of the bottom. Special openings about eight inches in diameter were provided in the bottom to allow the jacks to rest on the foundation. The yoke was fastened by bolts to a clip on the holder bottom and its entire weight, approximately five hundred tons, was supported by the jacks after the blocking had been removed. The bottom was then ready for lowering and a man was stationed at each jack, all facing the foreman. At the stroke of a gong each man took hold of the jack lever and walked once around. The gong was then struck again and the lowering continued in this manner, all men working in unison, until the bottom landed on the foundation. The lowering jacks were then removed, the plates bolted over the openings and the assembling of the side tank plates was commenced. The erection of the holder will be rushed in order that there may be an ample supply of gas for San Francisco for the next winter.



Company officials present at the ceremonies. *Left to right:* Messrs. D. H. Foote, F. A. Leach, Jr., W. S. Yard, John A. Britton, J. A. Mason of the Bartlett-Hayward Company, A. F. Hockenbeamer, Henry Bostwick, A. D. McVay, J. M. Dickey, Roy Cook, H. J. Smith and L. F. Gehring.

Oakland's New Six Million Cubic Foot Gas Holder Placed in Service

The month of September, 1922, will long be remembered as one of the important milestones passed in the development of "Pacific Service" as it marks the completion of two units of vital importance to the bay cities. These are Pit River Plant No. 1 and the new six million cubic foot gas holder at the Oakland gas works.

At noon on September 28, Mr. W. E. Creed and Mr. John A. Britton opened the valve which allowed the gas to flow into the new holder, located at the foot of Castro street in Oakland, placing the largest holder yet completed in the "Pacific Service" system in operation and insuring an ample supply for the east bay cities. Others present at the ceremony were Messrs. F. A. Leach, Jr., A. F. Hockenbeamer, W. S. Yard, R. E. Fisher, L. H. Newbert, A. H. Markwart, F. S. Myrtle and members of the Oakland gas department.

Mr. Britton recalled the Christmas Eve of 1876 when the sendout was one hundred thousand cubic feet and compared it with the present day maximum demand of sixteen million cubic feet. During these forty-six years Oakland has grown from a village to a city of importance and the gas supply has kept pace with the rapid growth.

Few of us realize how rapid the growth of the east bay cities has been during the past twelve years and just what has been done in the gas department to keep up with the ever increasing demand. At the end of the year 1910 the distribution system consisted of 571 miles of gas mains with 49,400 consumers served and the total gas manufactured for the year was 1,803,000,000 cubic feet. At the present time there are 1,240 miles of mains, serving in excess of 98,000 consumers and the



Messrs. Britton and Creed turning the valve which filled the holder with gas for the first time.

total gas manufactured for the year 1922 will exceed 4,300,000,000 cubic feet. During this period, 1910 to 1922, the gas demand has more than doubled and large expenditures have been necessary to increase the distribution system and enlarge the generating capacity. However, no storage holders were added except a 500,000 cubic foot holder which was moved from the Independent plant in San Francisco to the San Leandro compressor station.

The great increase in the consumption of gas for heating and industrial purposes caused an increase in the hourly demand which could not be met for the coming winter except by the installation of additional holder capacity. The generating capacity was ample, provided the gas generators were operated twenty-four hours per day, which could be done only by increasing storage capacity. Accordingly, plans were made for the construction of a holder to be in operation by October 1, 1922 in order to insure service for the coming winter. Actual construction work was started on the foundation during the first week in February and the laying of the steel bottom began April 11.

Six months is considered excellent

time for the erection of a six million foot holder, but a new record was established in the erection of the Oakland holder by completing it in four months and four days from the day the steel work was started. Only two days were lost on account of inclement weather. The Bartlett Hayward Company of Baltimore, who erected the holder state that never before in their experience in gas holder construction have they been able to erect a six million foot holder in this time. This is due, they consider, to the ability and willingness to work shown by the local men employed by them and to the very favorable climatic conditions.

The holder is of the telescopic type, with five lifts and steel water tank, and is designed to withstand a wind velocity of 100 miles per hour. It has a diameter of 219 feet and a height of 211 feet with all five lifts cupped. It occupies a ground area of 37,668 square feet. The foundation is a concrete slab structure poured on wood piling, designed to withstand a pressure of 2,700 pounds per square foot.

The steel tank is made up of seven courses of steel plates, varying in thickness from one and 35/64th inches at the lower course to 7/16ths of an inch at the upper course. The entire holder contains 5,500,000 pounds, or 2,750 tons of steel.



"Pacific Service" men who witnessed the filling of the Oakland holder.

Left to Right (back row): H. W. Beckman, R. E. Fisher, W. E. Creed, F. A. Leach, Jr., L. H. Newbert, Colonel Beck, W. S. Yard. *Front row:* A. H. Markwart, Van E. Britton, F. Welling, George Kirk, John A. Britton, A. F. Hockenheimer.



The Financial Side of "Pacific Service"

RECORD BUSINESS EXPANSION

The close of 1922 witnesses the passing of a year of satisfactory progress. Throughout the year there was a progressively increasing activity in general business in Northern and Central California which, coupled with the active efforts of the Company's sales organization, resulted in record sales of its products.

The Company's progress with respect to the increase in number of customers in the past three or four months is especially remarkable. The month of August witnessed a net addition of 5,575 new services to its distribution lines—a record of normal growth far surpassing any previous month in the Company's history. September, with 6,084 new customers added, showed an even greater increase than August, while in October, no less than 6,357 additional customers were connected, thus establishing still a new record of growth. The addition in November of 5,764 consumers brought the total number of customers served up to 640,517, a gain over last year's figures of 44,113 new customers. This splendid record of growth is quite naturally reflected in a larger consumption of gas and electricity, sales of gas during the month of November showing an addition of 15.79 per cent over the same month of 1921, and sales of electricity increasing 11.17 per cent at the same period.

The big new Pit River No. 1 power-house which was placed in operation about the middle of October, now has an output bordering on a million kilowatt hours per day. A kilowatt hour of electricity, expressed in terms of physical effort, represents energy equivalent to that expended by an able-bodied man performing the hardest day's labor of which he is capable. Some idea of the constructive force of an undertaking of this kind may, therefore, be gleaned from the statement that this single plant, each day, performs a service equivalent to the manual labor of approximately a million men. Incidentally, it is something new in the annals of hydro-electric development in California to place in operation during the season of the year when the normal stream flow is at its lowest a water-power plant which is at once capable of operating at practically its maximum capacity, thus substantiating the claim heretofore made that these Pit river plants are almost independent of seasonal precipitation.

A large proportion of the output of this plant is, of course, required to take care of the very substantial new business which is being taken on, but the operation of the new plant also reflects to the Company's advantage in permitting of a considerable reduction in steam generated energy and power purchased from other companies. During November, for example, the Company's hydro-electric output increased 23,162,292 kilowatt hours or 33.58 per cent, while the aggregate of steam generated energy and purchased power decreased 13,231,010 kilowatt hours, or 26.27 per cent. These figures indicate that our expenditure of approximately \$20,000,000 on the Pit river plants is being justified by results.

FINANCIAL DEVELOPMENTS DURING THE YEAR

In spite of the large expenditures incurred in the prosecution of the Company's construction program in the Pit river region, and for the additional facilities required to provide for the needs of the thousands of new customers added each month, no additional capital was raised through the sale of bonds. As a matter of fact, due to the operation of sinking funds and the retirement at maturity on September 1 of the small remaining balance of Livermore Light and Power Company 6 per cent Bonds, the amount of bonds outstanding in the hands of the public at the close of November was actually \$1,677,500 less than at the beginning of the year.

The issue of \$10,000,000 Collateral Trust 7 per cent Gold Notes which were outstanding at the close of 1921 were called for redemption on May 1, 1922, three years before maturity, and were refunded by the issuance of an equal par value of First and Refunding Mortgage Series "B" Bonds bearing only 6% interest, thus effecting a substantial saving in interest charges as well as placing this portion of the Company's funded debt on a more permanent basis.

Approximately ten million dollars worth of First Preferred Stock has been disposed of during the current year, and the funds derived from the sale of this security have enabled the Company, as above noted, to complete the construction of Pit River Plant No. 1 and make other income-producing additions to its properties. As a result of the improvement in the general market for investment securities, Preferred Stock is now being offered to the public at \$90 per share, compared with \$80 per share at the beginning of the year. That this stock is becoming increasingly popular with local investors is evidenced by the fact that both in number of subscriptions received and par value of stock sold, the record of any previous year is eclipsed. Up to December 31, 1922, 9,314 individual sales were made, aggregating \$10,038,400 worth of stock, bringing the total amount of this security sold direct by the Company since its inauguration of the "Customer Ownership" plan eight and one-half years ago up to \$35,956,000, as shown by the following table:

Direct Sales of First Preferred Stock by Years

<i>Year</i>	<i>No. of Sales</i>	<i>Par Value Sold</i>
1914.....	3,739	\$ 8,801,300
1915.....	1,712	3,785,100
1916.....	617	1,123,100
1917.....	650	890,000
1918.....	192	156,000
1919.....	52	35,900
1920.....	3,669	3,634,650
1921.....	6,399	7,491,550
1922.....	9,314	10,038,400
Total.....	26,344	\$35,956,000

Pacific Service Magazine

PUBLISHED IN THE INTERESTS OF ALL EMPLOYEES OF THE
PACIFIC GAS AND ELECTRIC COMPANY

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*The Pacific Gas and Electric Company desires
to serve its patrons in the best possible manner.
Any consumer not satisfied with his service
will confer a favor upon the management by
taking the matter up with the district office.*

VOL. XIV. DECEMBER, 1922 No. 7

EDITORIAL

Once more the Yuletide season is upon us, with the spirit of joy and good will uppermost in our hearts and all troubles and cares of our humdrum, everyday existence relegated, for the nonce, to the background. Once more, too, we survey a twelvemonth in retrospect and estimate all that it has brought us in the way of progress, in results achieved and in plans for further accomplishment.

The year just past may be entered into the pages of California's history as the greatest and most significant of all in its commercial and industrial development. Many years ago it was realized by those conversant with general conditions that California's industry could progress no faster than the development of her hydro-electric resources, and it became a problem not only with engineers but with financiers and others concerned in the big things of life how to provide against the constantly increasing demand for electric power for all uses, mining, agricultural, industrial and domestic. The situation became acute two years ago when, due to a succession of dry winters, the Sierra streams ran so low that it became necessary to curtail the general use of electricity. Certain industries classed as non-essential were forced to close down, while others were allowed to utilize a limited amount of electric current during certain hours of the day or night as directed by the controlling power,

the California State Railroad Commission.

The men of vision and resource were alive to the necessities and putting, so to speak, their shoulders to the wheel, bent every effort in the direction of preventing a recurrence of such conditions as confronted the power users in 1920. And now 1922 presents itself as a record year in California's history, for at its close we look upon such a thing as a power shortage in our beloved state as nothing but an ugly dream, impossible of realization.

In this record of achievement our own "Pacific Service" holds prominent place. Last September saw the first great power development in the Pit river system put in operation. With ground broken only a little over a year ago, Pit No. 1 powerhouse is contributing nearly one million kilowatt hours daily toward turning the wheels of industry. The development of the Pit may be considered the crowning achievement of "Pacific Service" in its endeavor to furnish an abundant and dependable supply of electric power to its consumers at the lowest possible cost. Twenty-seven years ago the nucleus of the comprehensive system that is "Pacific Service" was established when from an unpretentious little power-plant on the American river, near Folsom, the precious electric energy was transmitted a distance of 22 miles into the city of Sacramento. Folsom powerhouse is still in operation as a part of the "Pacific Service" chain that today links together 28 hydro-electric and 4 steam-electric plants in a territory extending from Shasta county to Tuolumne. There is a marked comparison, of course, between the modest little brick structure at Folsom with its diminutive generators and the stately power castle on the banks of the Pit, containing the two largest generating units in the United States. Yet, each has played its part in California's history.

Other changes have taken place in the electrical industry. Time was when, as in all other industries, the power companies waged relentless war one upon the other and the consumer paid the cost of warfare. But, happily, that day has passed and service is the accepted order of the hour. The power companies today are banded together in a unification of thought

and purpose. A striking illustration of modern conditions is to be found in the interconnection of electric transmission systems leading from the Cascade mountains of Oregon on the north clear down through the Golden State to the Mexican border. We have in operation in California today a great super-power system such as the Atlantic seaboard is planning as one of its major projects for the coming decade.

The year 1922 is notable for yet another achievement of benefit to the commonwealth at large as well as to the electric industry. An insidious attempt to destroy private initiative and enterprise has been overthrown, and in their rejection of the so-called Water and Power Act the people have recorded a vote of confidence in the water-power industry as conducted by private initiative and enterprise under public regulation and the best kind of public ownership, namely, customer ownership.

In the record of public service achievement our old standby, gas, holds no mean place. The demand for this hundred-year-old commodity is increasing daily, for in its value as an industrial as well as a domestic fuel it heads all rivals. So, as with electricity, efficiency as well as economy of operation has engaged the brains of all the best gas engineers in the country, with the result that vast improvements have been made in both the generating and distributing features of the business. Last year we noted certain achievements in extensions of high-pressure systems. Still greater advances have been made, and during the year just past a record of 42 miles was established. And, as our company's general manager observed in a recent address, the end is not yet. Gas service facilities in the bay cities have been extended within the last few months. A six-million-foot holder has been put in operation in our company's plant in Oakland, and quite recently construction

work was started upon a ten-million-foot holder for the Potrero works in San Francisco.

On the financial side, the record is equally encouraging. In May last our company refunded ten million dollars' worth of 7 per cent notes with bonds bearing 6 per cent interest, thereby effecting a considerable saving in interest charges. It is estimated, too, that the sales of first preferred stock for the year 1922 will, by its close, have reached the splendid total of ten million dollars, and that the number of holders of our company's stock on the books will exceed twenty-five thousand, of whom eighty per cent are residents of the State of California! Surely these figures in themselves offer a sufficient refutation of the charge of "privately-owned" which the political agitators hurl, from time to time, against such institutions as ours!

And now, as this goes to press, comes news from headquarters that our company's directors have declared a quarterly dividend of \$1.50 per share upon the common stock, thereby placing the common on a 6 per cent per annum interest basis. In addition, the directors voted an extra dividend of \$2.00 per share payable in common stock at par, this action subject to formal approval of the California State Railroad Commission. A similar stock dividend was declared just a year ago.

Undoubtedly it may be said that our company now holds a very strong cash position among the light, heat and power utilities of the land.

We are marching on, truly. The outlook is bright for progress and development in every direction. With hearts full of thankfulness for the past and confidence in the future, we take pleasure in extending the compliments of the season to our readers and wishing them all

A Merry Christmas!

A Happy New Year!



OUR "PACIFIC SERVICE" EMPLOYEES ASSOCIATION

The annual convention and election of officers for the ensuing year was held in San Francisco on Monday, November 20. The following officers were elected to serve:

Chairman, J. S. Worthington; vice-chairman, R. W. DuVal, secretary, R. W. Robinson; treasurer, J. C. Carmody. T. B. Copeland of Shasta and H. W. Beekman of East Bay were chosen members of the Executive Committee.

The morning session of the convention was devoted to the election of a member-at-large to represent the Association upon the Employees' Welfare Committee of the Company, each section being represented by two delegates. William Baldewiler, line foreman of the San Joaquin Division was elected to the office.

During the noon recess the Executive Committee of the Association was entertained by the management of the Company at luncheon. At this president Creed and general manager John A. Britton made addresses, touching on "Pacific Service," its past achievements, its future and the value of the get-together spirit of the employees in its resultant originality of thought and expression.

Mr. Britton referred to the Pit river development as a world's construction feature and thought the various excursions to that region during the past few months had, through their instructive quality, done worlds to advance "Pacific Service" ideals. Recent achievements in high pressure gas distribution were mentioned, and, said Mr. Britton, "the end is not yet."

Mr. Creed spoke most enthusiastically of the "Pacific Service" record during the past twelvemonth. He told his audience that the financial credit of our company ranked as high as any public utility in the country. "We are buyers of money, but we no longer have to seek out the sellers; they seek us out," declared Mr. Creed. He thought that this enviable condition had been arrived at largely through the company functioning well in the business

of public relations. Referring with pride to the defeat of the so-called Water and Power Act, Mr. Creed said "We have preserved the solvency of the State and have kept California in the American column."

The company's slogan for the future should be, "One hundred and fifty thousand stockholders." Undoubtedly the best public ownership was customer ownership. Meanwhile, the company was rendering the best service possible at the lowest price consistent with its ability to function properly. "Our company was not in the profit-making business. It is a great public agency," said Mr. Creed.

In the evening the officials and the division managers of the company, including members of the Employees' Welfare Committee, were guests of the Association at dinner. It was a delightfully informal affair at which everyone present, regardless of rank or station, was invited to contribute his share of the entertainment and to speak his mind freely. Mr. Creed and Mr. Britton were again present and again were in their happiest vein when called upon.

The election of officers, held in the main auditorium of Native Sons' Hall was attended by over five hundred members, including a large delegation from East Bay Section who rallied to the support of their choice for chairman, Mr. Joseph Worthington. The meeting was enlivened by spirited contests for the offices of vice-chairman and treasurer in which the spirit of good natured rivalry prevailed. Retiring chairman Wm. M. Henderson presided and rendered his report on the activities of the Association during the past year.

Mr. Henderson announced that the purpose of his report was to guide the incoming administration in its next year's activities, all committee and sectional chairmen having rendered their recommendations for the future growth and welfare of the Association. It was not practicable, explained Mr. Henderson,

to touch on the activities of all the committees, but a few subjects he considered of outstanding interest to the membership.

The chairman commented particularly upon the work of the Benefit and Loan Committee. "Here," he stated, "lies some of the greatest good that the Association is qualified to do. A special committee has been working in conjunction with the Benefit and Loan Committee preparing a plan by which we might inaugurate a sick and disability benefit plan for the members, or for such members as desire to participate in such insurance. Considerable progress has been made in working out the possibilities of the plan and it is apparent that the idea is practicable. There is apparently sufficient demand on the part of the membership to put into practical operation some form of health insurance. However, from the study that has been made and the data at hand, it would indicate that the Association should limit itself to a plan that would provide only financial assistance to the participants. To go further than this involves certain complications and hazards that would be better left for future determination, after experience has first been obtained with the simpler scheme proposed. Also inasmuch as it is probable that a small portion of the members may not feel inclined to participate in such a plan, it appears best that the sick benefit insurance be a separate organization, sponsored and administered by the Association for the benefit of the interested members. A final report of the committee will soon be available and the membership may then judge for themselves the good work done by it.

"Another subject worthy of attention is the work of the Educational Committee. Educational work has always been close to the hopes of past administrations, but until the present plan, inaugurated last year, was adopted, we did not have a fixed program. This year the idea was further developed and a good foundation has now been laid to carry on this activity indefinitely. Class instruction with a selected leader has answered the problem

of how to carry the educational benefits to the members. The Educational Committee chairman and members are deserving of much credit and the appreciation of the membership for the number of courses that have been prepared and the volume of work that they have been able to cover during the past year. Over eleven hundred enrolled students offer them their thanks.

"This year completes the first volume of the P. S. E. A. News, a monthly publication for and about the members. That it has been a success is evident by its monthly reception. Such a paper serves a useful purpose and adds interest to Association affairs on the part of the members. The editors have ideas for the future that will enlarge and add new features and in this respect the Executive Committee should encourage them by an additional appropriation."

In conclusion the chairman expressed his appreciation to the executives of the Company for the help they have cheerfully given in carrying out the Association's plans. "We like their interest," he said, "and their participation as individuals and we profit by and enjoy the occasions when we have been invited to sit at their meetings. Such contact encourages confidence and promotes a relationship that fosters co-operation. Co-operation is essential and through this medium both our Company and our Association will go forward to bigger fields and better days."

Following the business session the Association's "Road Show," recently returned from a tour over the northern portion of the State, was presented for the first time to the San Francisco members. Captain George B. Baldwin delivered a thirty-minute talk on the growth and development of "Pacific Service." The lecture was illustrated by an illuminated map on which the various transmission lines were shown in colored lights, as well as by lantern slides. There followed a demonstration of high-frequency electric current, presided over by W. R. Coover and Phil. Riter. At the conclusion of the program dancing was enjoyed until midnight.

Bread Baking De Luxe with Gas, the Master Fuel

By F. H. PELLE, Industrial Engineer, San Francisco Division

When the shores of San Francisco Bay were peopled by the hardy pioneers, bread making was almost wholly a home and family affair, but as the years rolled by the public bakers began to make their appearance. Crude brick and stone ovens were used, the coal or wood being put through the same opening that served for putting in the bread. After the fire was made up and the oven heated, the wood or coal was raked out again through the same door, and the dough was put in for baking.

Not until the exploitation of the laws of physics and chemistry had stirred the spirit of invention did the baking industry begin to turn to machinery in the place of hand work. However, once applied mechanics started to take the art of baking out of the realm of handicraft, by substituting pulleys and wheels for muscle and sinew and steam for the sweat of the brow, there was no halt. Dough kneaders, dough dividers, patent flour blending and sifting machinery, and patent weighing machines, all came in rapid succession. But of all the appliances used in making bread, the oven was the last to receive attention. For years and years it had undergone practically no changes. Baking ovens, as mentioned previously, in their oldest and simplest form consisted of a round or oval chamber with a vaulted ceiling, constructed of



Gas fired bake oven of the Old Homestead Baking Co., San Francisco, largest in the West.

brick, stone or clay. These ovens had but one opening, which served for putting in the fuel, letting out the smoke, receiving the dough, and removing the bread.

Contrast this with the Baker gas-fired traveling bread oven recently installed at the Homestead Bakery located at Nineteenth and Howard streets, San Francisco, at a cost of \$70,000. The loaves are fed in at one end, on an endless conveyor, and slowly and continuously conveyed through the baking chamber, to be discharged, completely baked, at the opposite end, the entire operation requiring about 30 minutes per loaf.

Inspection doors are provided at various points, so that the progress of the baking may be carefully watched. The first loaf in is always the first loaf out, and each loaf is in the oven exactly the same time. The oven is 110 feet long. Heat is supplied by 124 tubular gas

burners nine feet in length, operated with a four-pound gas pressure. This pressure is created by a Keith Rotary compressor, operated by a three horse-power motor. The high-pressure on the gas inspires the proper amount of air at the burner head, which is equipped with an adjusting screw permitting an equalized distribution of heat throughout the entire burner length. The burners are placed both above and below the traveling hearth, and are so designed and constructed that they maintain a uniform temperature in the oven.

While this installation has many noteworthy features, all worthy of mention, it would take too much space and time to enumerate them all. Suffice to say this is the largest gas-fired baking oven in the West.

The thing most interesting to the gas

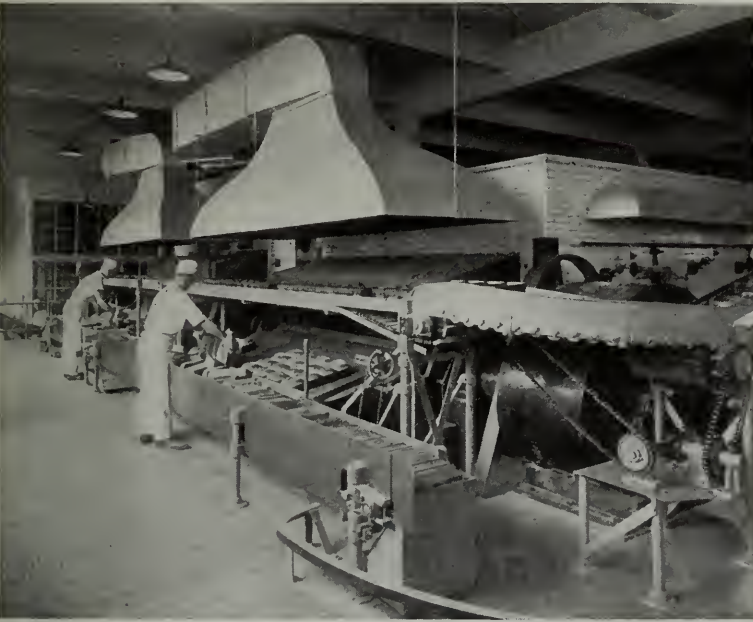
to picture the importance of baking apparatus that is free of soot, dirt, smoke, ashes and other equally unhealthful and bothersome substances and odors. The owners unqualifiedly endorse the use of gas in their oven, and are more than enthusiastic over the results. One has only to stand at the delivering end of the oven and watch the golden, evenly browned, crisp loaves issuing forth, and "sniff" the aroma, to feel that he could subsist on bread alone for the rest of his life.

The monthly revenue from the gas consumed in this traveling oven, based on the present average output of 62,000 one-pound loaves per day, will run in the neighborhood of \$1,000, showing the importance of obtaining this and similar types of installations, and furnishing plenty of inspiration to the Industrial

Gas Department. On the other hand, the economy to the owner is evidenced, as in this particular case, the actual gas consumed is but seven-eighths of one cubic foot for each loaf of bread.

Our industrial engineers are constantly at work broadening the field of industrial gas application and the outlook for the future is extremely encouraging. The public is being educated as rapidly as possible and one by one the industries are

falling in line and installing gas burning equipment on a large scale. The possibilities are without limit, and we are awake and on our feet. The high efficiency of gas is being demonstrated daily and will always uphold our slogan "Gas—The Ideal Fuel," one of the greatest servants the world has ever known.



62,000 loaves are baked daily in this mammoth oven.

man is the fact that gas is proving such a wonderful success in this installation. Its merits are manifold. In baking, as in practically all other industrial equipment, control and uniform distribution of heat is a dominant factor and, in this respect, gas utilized as fuel has absolutely no equal.

It takes no stretch of the imagination

Additions to the Sacramento Gas Plant and Improvements to the Distribution System

By ERNEST A. WESTON, Superintendent of Gas Department, Sacramento Division.

Sacramento, the capital city, with an area of fourteen square miles, has a population of 75,416. New homes are being built at an average rate of one hundred per month. Estimating on this basis, the population for 1922 should reach 81,000.

Building construction for the year 1922 is estimated to run between twelve and fifteen million dollars. This amount will exceed the combined total of the last five years. The record includes six new schools, the Capitol extension building, the twelve-story California State Life Insurance building at Tenth and J streets and the Bank of Italy building at Sixth and K streets. A number of large apartment houses have been completed within the last six months, and gas has been installed for heating and cooking purposes. The latest installation was at the Pendergast Apartments, Tenth and O streets,

where a welded manifold carrying meters to serve thirty-six apartments was installed.

Sacramento in the past two years has shown a marked increase in gas consumption. The increase for the year 1921 over 1920 was seventeen per cent. With the large number of gas-fired heating systems, automatic water heaters and boilers being installed, the addition of 813 new consumers, from January 1, 1922 to August 1, 1922, and the supplying of Davis and Woodland from the Sacramento plant, the peak day load of 2,508,100 cubic feet on January 21, 1922 taxed the plant to its full capacity.

"Pacific Service" engineers proceeded with plans for additional equipment at a cost of approximately \$125,000. Work was started by the gas construction department upon a 16-foot extension to the primary shell of a 14-foot



General view of the Sacramento Gas Works showing the two storage holders.

Jones generator set installed in 1911. By installing an additional arch and checker brick to form the primary super-heater chamber it is expected to increase the capacity of this set from 100,000 cubic feet per hour to 125,000 cubic feet per hour.

A battery of two 250-horse-power Sterling boilers is also being installed. The boilers are of a new design, fired at both ends with a total effective heating surface of 5,226 square feet, equipped with diamond soot-blowers of latest design. Before this battery of boilers could be installed all boiler auxiliaries were moved to a new location in the engine room.

For the foundation of this battery of boilers it was necessary to drive 34 wooden piles 35 feet long in 9 bents. They were then capped with a concrete foundation 4 feet by 4 feet by 5 feet, finished with an 8-inch reinforced concrete slab carrying 143,100 pounds.

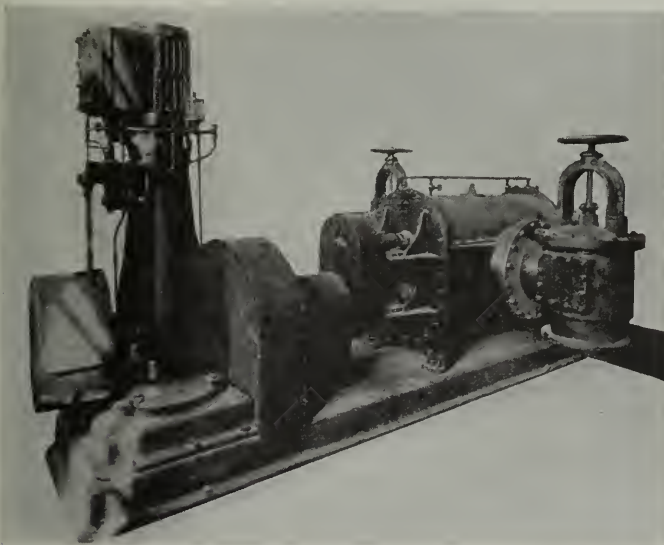
There was next installed a Number 8 steam-driven direct-connected exhaustor

with a capacity of 164,000 cubic feet per hour.

The present purifying capacity is not adequate to handle the additional output, so it was decided to install the Seaboard liquid process of gas purification designed by the Koppers Company of Pittsburg, Pennsylvania. This system has met with marked success in the East, but is new on the Pacific Coast. The gas is scrubbed with a solution of soda ash which absorbs the hydrogen sulphide together with most of the hydrocyanic acid and some carbon dioxide. The foul solution is thoroughly aerated and is used again to scrub the gas, making the circulation of the solution continuous. The apparatus



Fourteen-foot generator, showing addition to primary shell.



The new exhaustor installation.

consists of two scrubbers, which are called the absorber and actifier, partly filled with a bed of nut size coke, with pumps and fans as auxiliary equipment. This process has an efficiency of 92.6 per cent. This installation has a purifying capacity of 330,000 cubic feet per hour, capable of reducing the hydrogen sulphide from 287 to 21 grains per 100 cubic feet.

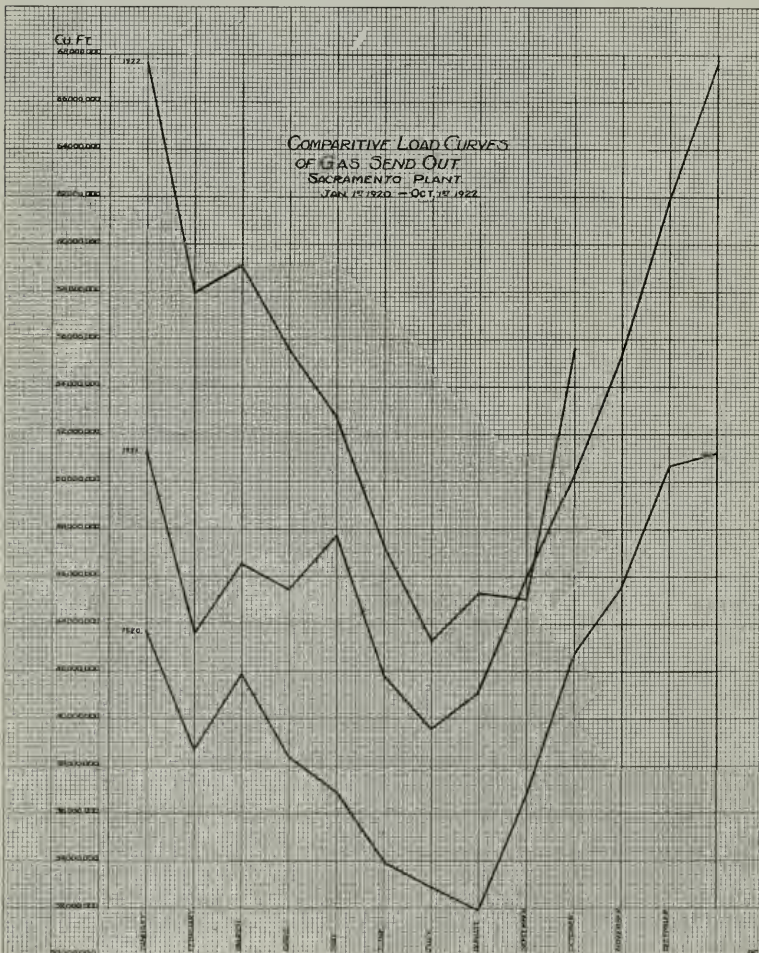
To insure ample pressure on the peak load on the low pressure system, and as an auxiliary to our present electric driven booster, a Number 9 steam driven booster was installed, capable of delivering 600,000 cubic feet per hour of .4 specific gravity gas at 12-inch pressure.

There is also being installed a 200-horsepower cross-compound steam driven compressor with a capacity of

130,000 cubic feet per hour. This compressor is equipped with balanced slide valves on 10-inch stroke, and the Myer's adjustable cut-off on 12-inch stroke, with automatic speed and pressure regulating governors which are especially adapted for controlling varying loads on our high pressure systems. This is due to the number of district regulators feeding the low pressure system in the outlying territory, supplied by 23 miles of high pressure transmission line in the City of Sacramento. Within the last year, there were laid $2\frac{1}{2}$ miles of 8-inch high pressure welded main, and $7\frac{1}{2}$ miles of 4-inch welded high pressure main.

The Sacramento works is serving 14,310 consumers through 236 miles of main and is greatly assisted by our high pressure lines feeding

the low pressure system through eighteen district regulators. This style of regulator will reduce any inlet pressure up to 100 pounds to ounces. By setting these regulators to operate at a 7-inch pressure, the least drop of pressure at the outlet due to increased consumption causes the valve to open, maintaining the desired pressure of 7 inches on the distributing system at all times. With the coal shortage, scarcity of wood fuel and reduction of gas rates, we are looking forward to a winter load that will greatly exceed all previous established records.



Comparative load curves of gas send out, Sacramento plant, June 1, 1920, to October 1, 1922.

Tidings From Territorial Divisions

East Bay Division

The remarkable gains made by Oakland in manufacturing in the five-year period ending with 1920 are shown by the following report, based upon the United States census:

Persons Engaged in Manufacturing

San Francisco, increased.....	45.7%
Los Angeles, increased.....	87.9%
OAKLAND, increased.....	175.3%

Capital Invested in Manufacturing

Los Angeles, increased.....	56.2%
San Francisco, increased.....	124.1%
OAKLAND, increased.....	226.5%

Horsepower Used in Manufacturing

Los Angeles, increased.....	46.7%
San Francisco, increased.....	61.4%
OAKLAND, increased.....	168.5%

Value of Products in Manufacturing

San Francisco, increased.....	157.1%
Los Angeles, increased.....	170.0%
OAKLAND, increased.....	326.5%

Wages Paid in Manufacturing

San Francisco, increased.....	122.2%
Los Angeles, increased.....	176.5%
OAKLAND, increased.....	378.6%

Typical of the results that may be expected from the attraction of a large tourist group to Oakland is the case of Messrs. Kling and Dawers of Kentucky, who recently established a new store in Oakland. These gentlemen, who opened a fine stationery and office supply store on Fifteenth street, between Broadway and Franklin, about October 15, were visiting the city a few weeks ago and became so thoroughly "sold" to Oakland's many advantages and future possibilities that they decided forthwith to locate there, a decision that necessitated the sale of a thriving business in Kentucky and the removal of their families across the continent.

Both declare that they came here simply as tourists with no other idea than "to see the city" and with no intention of going into business.

Already they have become enthusiastic boosters for the city of their adoption and an influx of Kentuckians is expected as a result of their endeavors.

Announcement is made of the recent purchase by the Associated Oil Co. of two and one-half acres of industrial property at Fifty-ninth and Green streets, Emeryville. Though the oil company has not published its exact plans regarding the use of the newly acquired acreage, it is understood that building will be undertaken there next spring on structures to cost at least \$250,000.

The National Nut Co. of California has recently taken a ten-year lease on a fine new factory building on the northeast corner of First and Franklin streets. The firm, which was incorporated here some months ago for \$750,000, is affiliated with the famous "Nut House" of Seattle, whose products are famous the country over. Operations are scheduled to start this month, the line to include all the popular "Nut House" products including salted nuts, blanched nuts, peanut brittle and nut candies of all sorts.

The Martin Products Company has leased a plant at the southwest corner of Forty-fifth and Holden streets, Emeryville, where they will manufacture automobile accessories, specializing in "Grease-easy Cartridges" for use in greasing automobiles. They are also prepared to do drawing and stamping custom work for other industrial concerns.

Rhodes-Jamieson & Company announce that they are now operating an extensive stone-tile plant under license of the National Stone Tile Company. This industry covers a five-acre tract located on the estuary near High street, and is served by a Southern Pacific spur and also has water connection. Raw materials from the

Sacramento River District and stone from Marin County are being largely used in the production of this commodity. This company informs us that they are turning out 10,000 tiles a day, which is equivalent to 30,000 bricks. Local orders are now being filled, the Southern Pacific Company and the Pacific Telephone and Telegraph Company, being among the large concerns having placed orders.

J. C. J.

Colgate Division

The Southern Pacific agent at Maxwell reports that 10,000 pounds of turkeys were shipped from there on the Monday before Thanksgiving on the turkey train to the city market. This does not include all the birds that were raised by Maxwell people and marketed at this time, as many pounds of turkeys were taken to Williams and sold to buyers at that place.

Quite a number of turkey raisers considered that their birds were not fat enough and have kept them over for the Christmas and New Year market.

Rice growers in Sutter and Yuba counties have practically completed the storing of this season's crop. The harvest has been under way since along in October, and the final threshing is now under way. Trucks are still running in large numbers transporting the rice to the warehouses in Marysville and Yuba City and points along the Sacramento river. The yield is excellent.

The Yuba county crop was the latest to be harvested and some threshing is still under way there, as well as in Sutter, so that a rain now would dampen the grain in the shock, delaying completion of the threshing, but would not do great harm. The growers have kept the threshed rice moving to the warehouses as fast as threshed, so little sacked grain will be damaged.

The California Rice Growers' association estimates the 1923 acreage of the Sacramento valley at 145,000 acres, and the remainder of the state at 3,000 acres. This is against a production of 126,000 acres in 1921.

F. A. P.

Sacramento Division

The following letter to Mr. C. E. Sedgwick speaks for itself:

Dixon Community Council

Dixon, Calif.

November 18, 1922.

Mr. C. E. Sedgwick,

Dixon, Calif.

Dear Mr. Sedgwick:

We want to thank you for the splendid service you rendered as a member of the Committee on Outside Information.

The thing that wins for an organization like our Community Council is a thing well done. The thing that will make Dixon win right now is the work of the Community Council well done. So you see that you have been instrumental in doing something constructive for the benefit of Dixon.

Again thanking you for your co-operation and wishing you personal success,

I remain yours very truly,

T. L. STANLEY, Sect'y,
Dixon Community Council.
E. W. F.

San Joaquin Division

The Mother Lode Highway Association, which has for its object the fostering of a movement to induce the next legislature to provide for the building of a highway to extend through the five mountain counties of Placer, El Dorado, Amador, Calaveras and Tuolumne, met in Sonora recently to discuss plans for the furthering of this great project, which will no doubt have a wonderfully beneficial effect on the counties traversed by it, three of which lie in San Joaquin Division. A great drive is planned by the progressive citizens of the mountain sections to raise funds to assist in the construction of this mammoth improvement which will open to the world of tourists the heart of the most romantic region of the State of California, a region which is most closely connected with the famous gold rush of '49, a district replete with interest throughout for every visitor, the great Mother Lode country.

The famous old App and Heslip Mines

which in past years have startled the mining world by their immense contributions of golden wealth are to be called upon to repeat their achievements of the past. Work has already been started and machinery ordered installed at once in these mines. A lease has now been granted to C. W. Ayres of Jamestown, D. E. McPherson of Deadwood, S. D., and J. Keyes of Arizona and New Mexico, who are to jointly undertake the opening up of the old mines and get into the workings known to carry high values.

Preliminary work is also being done at the Columbus and Donella Mines near Cherokee, Tuolumne County, and the small crews are being increased as fast as a place can be made for more men. It is expected that in a very short time these mines will be in a profitable condition.

Work is also being done at the Sledge Mine at Tuolumne. The company which has taken up the Sledge is said to have plenty of money behind it, and will completely develop the old river gravel, which has already been tested for gold values and has proven highly satisfactory.

At least ten residences have been built or are under construction as a result of the organization of the Oakdale Improvement Company by the Chamber of Commerce at Oakdale. This company was formed for the purpose of financing the building of homes for people who wanted homes but lacked the ready money to buy them. The Improvement Company has not only financed ten new homes, but has also encouraged other people to build, and has incidentally been the means of keeping every artisan in Oakdale busy for the past year.

Permits have been granted to Schadrich Bros. of Oakdale to construct a business block in that city, at an estimated cost of approximately \$25,000. The building is to be constructed of brick and will constitute one of Oakdale's finest store and office buildings.

The Kirkman Nurseries, which have purchased some 1,100 acres near Brentwood, Contra Costa County, contemplate the planting in the spring of an acreage three-quarters Kadota figs and one-quarter black Mission figs. It is considered

that this section will be very suitable for the raising of figs, and the development of the Kirkman orchards will be watched with great interest.

The Tracy Chamber of Commerce has started a movement to plant shade trees along fourteen miles of the highway adjacent to Tracy. Trees will be secured from the State Nursery free of cost. The Highway Commission will survey and mark the location of the trees and maintain them after planting. This enterprise on the part of the citizens of Tracy is worthy of commendation, and is an example which might well be followed by cities and towns throughout the State.

One of the biggest pumpkins ever grown in Stanislaus County was recently displayed in Modesto. It weighed 210 pounds and would have made enough pumpkin pies to feed a regiment. It was grown in a double cropped corn field. The next largest pumpkin known in Modesto was displayed a few years ago, but was a poor second, weighing but 135 pounds. Some pumpkins!

Bonds for the construction of a sewer line from Chaton drain to the Turlock City sewer farm, in amount of \$20,000 were voted recently by the people of Turlock. The sewer farm question is one that has been fought in Turlock for years, and eventually led to the filing of suits against the city, aggregating \$15,000 for land alleged to have been damaged by seepage from the farm, which, it was charged had ruined farm land. The sewage system for which the bonds were voted will connect the present sewer farm with the Turlock Irrigation District drainage canal.

The first meeting of the Stanislaus County Cattlemen's Association was held in Oakdale recently. The object of this association is to bring about a closer relation among the cattlemen in order to enable them to work in a body for the benefit of their industry. It is reported that the cattle industry is in good shape in Oakdale, and aside from good marketing facilities, Oakdale also boasts of a thriving dairy industry, the sale of butter-

fat alone bringing a return of approximately \$1,000,000 annually to the dairy-men.

The alcohol plant recently proposed by the California Sweet Potato Corporation for Turlock is now a certainty. Investigation reveals the fact that Turlock wants such a manufacturing establishment, and sufficient support has already been pledged to enable the work to be started in the very near future. The alcohol plant was proposed in order to form a market for the by-product of the present sweet potato curing plant.

The Fraternal Hall Association which was recently formed in Modesto, is composed of a number of lodges and fraternal organizations. It is the object of the association to build a four-story lodge building, the cost of which is estimated at \$150,000. This enterprise is worthy of highest praise, as in addition to adding a handsome building for the city of Modesto, it will also mean the establishment of a closer relation among the various lodges, an object which is highly desirable.

Oakdale is coming prominently forward as a producer of almonds. This season shipments have amounted to over 500 tons, with a value of approximately \$150,000, as compared with a crop value of \$75,000 for 1920. The Oakdale Almond Growers Association maintains a warehouse in Oakdale where the almonds are sulphured, graded, and packed for shipment to all markets. Fancy prices for nuts have helped to make this a staple industry at Oakdale. L. J. N.

San Francisco Division

To date this winter the gas output has surpassed all expectations, and the increase is far beyond that of any previous year. The output for November was eighty-nine million cubic feet, or nearly sixteen per cent greater than November of last year. The peak day this year was nearly three million cubic feet greater than November last year. Assuming the same proportional increase, the output for

January will be over eight hundred million cubic feet, and the maximum day will be close to thirty-one million.

November weather was clear and snappy; this fact, with the substantial increase in the gas output, would clearly indicate that gas for heating is coming into its own.

The steel work is complete on the rebuilding of No. 1 relief holder at the Potrero plant, and just as soon as the tank is filled with the two million gallons of water required, this holder will be put in commission again. Should the new holder last as long as its predecessor it will not have to be rebuilt again until 1972. Wonder who will do the work next time? J. M. D.

Due to the rapidly increasing load at the Hills Bros. Coffee Co., on Fremont between Mission and Howard, it has been necessary to build a manhole and install additional transformers.

The service to supply a load of sixty-five horsepower for the Crystal Palace Market at Eighth and Market streets is now ready for use.

The use of electric heating appliances has increased to such an extent that it has been necessary to install additional transformers in different localities to take care of the increase in load.

At 5:30 P. M. December 5, the city peak load was 104,500 kilowatts and the total consumption in the city for the twenty-four hours was 1,435,160 kilowatt hours. This is the greatest electric demand ever recorded for San Francisco.

During the past month three feeders from Station G and one from Station F were cut over from two phase to three phase. One feeder from Station G and one from Station F are expected to be cut over to three phase by January 1. Work has increased to such an extent that it has been necessary to organize another heavy line gang.

The Steam Distribution Department laid approximately nine hundred feet of six-inch main line last month from Station S at Post and Meacham Place to Hyde and Bush streets.

A. U. B.

The operation of motor vehicles demands the need for driver-courtesy on the streets. Motor vehicles are important factors in the transportation system but the degree of this importance is dependent on drivers. Bring out these points to your drivers: Public opinion can make or mar the progress of motor vehicles. Consideration and courtesy of motor vehicle drivers helps to formulate public opinion. Drive at a moderate rate of speed at all times. Avoid taking chances as do other drivers. Give ample warning to pedestrians or vehicles that are about to be passed. Street courtesy is the lamp that lights the way to efficient automotive equipment operation and only through united effort can this be achieved.

E. C. W.

—x—

North Bay Division

October 17, 1922, was made historic for the city of Mill Valley, for on that day gas was first turned into the new mains and the people of that community were afforded the new advantage of "Pacific Service."

The company celebrated the occasion by holding a series of gas cooking demonstrations and domestic science lectures in the Old Mill school auditorium, the local dealers co-operating by making a splendid display of gas appliances. The lectures were well attended and the interest shown was evidence that this modern improvement received universal approval.

Work on the Sausalito end has been rushed so that gas will be available there by the middle of December.

Over twelve hundred new customers will be added to our mains in these two towns and adjacent territory.

The San Rafael Ice Company has completed its new ice plant, which will be in operation by December 15. The initial

capacity will be fifteen tons daily with a fifty horsepower connected load. It is expected that the capacity will be doubled within a year.

The Natasha Navara Picture Corporation is remodeling its old studio at Fairfax. They will be ready for active work before the first of the year.

Among the new industries recently located in Marin County are the Hidecker Brick Company, formerly of Oakland and the Perry Paint Company of Santa Clara.

Steel has begun to arrive and the lot is being cleared for the erection of the new 500,000 cubic foot gas holder for the San Rafael works. The new generator has been completed and is now in operation. The daily send-out of this plant is now averaging over 500,000 cubic feet.

On Sunday, November 13, the Petaluma Chamber of Commerce conducted an excursion down the Petaluma River to view the completed work of the American Dredger Company. Two large cuts have been made, each about a mile in length, eliminating a number of tortuous and difficult passages in the river, making the navigation easier and safer and consequently materially reducing the time schedule between Petaluma and San Francisco.

President E. H. Maggard of the Petaluma and Santa Rosa Railway Company very generously donated the Steamer Petaluma for the use of the excursionists. Congressman Clarence F. Lea accompanied the party, for the purpose of obtaining a personal inspection of the work he had recommended, and expressed himself highly pleased with the results.

This is by far the largest piece of work that the government has done on this waterway. It has been accomplished in about ten weeks. The dredger "Yankee," equipped with motors of 1,045 horsepower did the job with current supplied by "Pacific Service."



Pacific Gas and Electric Company Furnishes

"PACIFIC SERVICE"

TO OVER 634,000 CONSUMERS OF

GAS ♦ ELECTRICITY ♦ WATER ♦ STREET RAILWAY

1,715,959 Total Population Served in Thirty-six of California's Counties

CITIES AND TOWNS SERVED BY COMPANY

	DIRECTLY		INDIRECTLY		TOTAL	
	No.	POPULATION	No.	POPULATION	No.	POPULATION
Electricity	170	1,117,541	61	156,411	231	1,273,952
Gas	58	1,128,216	2	8,600	60	1,136,816
Water (Domestic)	1	61,719	8	15,488	26	77,207
Railway	1	65,908			1	65,908

Place	Population	Place	Population	Place	Population	Place	Population
*Alameda.....	28,806	*El Verano.....	400	Meridian.....	200	*San Leandro...	5,703
*Albany.....	2,462	*Emeryville.....	2,390	*Millbrae.....	300	*San Lorenzo...	500
*Alvarado.....	1,000	*Escalon.....	600	*Mills.....	400	*San Martin.....	250
*Alviso.....	517	*Esparto.....	200	*Monterey.....	2,554	*San Mateo.....	5,979
*Amador City...	377	*Fairfax.....	250	*Milpitas.....	300	*San Pablo.....	500
*Anderson.....	750	*Fairfield.....	1,008	*Mission San Jose.....	500	*San Quentin...	3,000
*Angel Island...	500	*Fair Oaks.....	300	*Modesto.....	9,241	*San Rafael.....	5,512
*Antioch.....	1,936	*Fall River Mills	300	*Mokelumne Hill	900	*Santa Clara...	5,220
*Aptos.....	300	*Farmington....	300	*Monterey.....	5,479	*Santa Cruz.....	10,917
*Arbuckle.....	900	*Felton.....	300	*Morgan Hill...	646	*Santa Rosa.....	8,758
*Atherton.....	500	*Folsom.....	2,000	*Mountain View	1,888	*Saratoga.....	500
*Auburn.....	2,289	*Forestville....	250	*Mt. Eden.....	200	*Sausalito.....	2,790
*Barber.....	500	*Fresno.....	45,086	*Napa.....	6,757	*Sebastopol.....	1,493
*Belmont.....	375	*Gilroy.....	2,862	*Nevada City...	1,732	*Shasta.....	200
*Belvedere.....	616	*Glenn Ellen...	1,000	*Newark.....	500	*Shellyville....	200
*Benicia.....	2,693	*Gozales.....	500	*Newcastle.....	750	*Sheridan.....	250
*Ben Lomond....	400	*Grass Valley...	4,006	*Newman.....	1,251	*Smartsville....	300
*Berkeley.....	56,036	*Gridley.....	1,636	*Niles.....	1,000	*Soledad.....	400
*Biggs.....	683	*Grimes.....	500	*Novato.....	400	*Soquel.....	400
*Bolinas.....	200	*Groveland.....	500	*Oakdale.....	1,745	*Sonoma.....	801
*Brentwood.....	400	*Guerneville...	800	*Oakland.....	216,261	*Sonoma.....	1,684
*Broderick.....	700	*Hamilton City..	250	*Oakley.....	200	*South San Francisco.....	4,411
*Burlingame....	4,107	*Hammoncton...	500	*Occidental....	600	*Standard.....	500
*Byron.....	350	*Hayward.....	3,487	*Orland.....	1,582	*Stanford Uni-	2,700
*Campbell.....	600	*Hercules.....	373	*Orville.....	3,340	*versity.....	2,700
*Capitola.....	300	*Hillsborough...	931	*Pacheco.....	300	*Stockton.....	40,296
*Carmel.....	638	*Hollister.....	2,781	*Pacific Grove...	2,974	*Suisun.....	769
*Cement.....	1,000	*Houcutt.....	500	*Palo Alto.....	5,900	*Sunol.....	350
*Centerville....	1,000	*Hughson.....	250	*Paradise.....	500	*Sunnyvale....	1,675
*Ceres.....	637	*Ione.....	1,000	*Patterson.....	694	*Sutter City....	250
*Chico.....	9,339	*Irvington.....	1,000	*Penn Grove....	200	*Sutter Creek...	920
*Colfax.....	573	*Jackson.....	1,601	*Perkins.....	250	*Tehama City...	196
*College City...	250	*Jamestown.....	750	*Petaluma.....	6,226	*Tiburon.....	400
*Collinsville...	200	*Kennett.....	464	*Piedmont.....	4,282	*Tracy.....	2,450
*Colma.....	1,500	*Kentfield.....	500	*Pike City.....	200	*Tres Pinos....	300
*Columbia.....	200	*Kenwood.....	300	*Pittsburg.....	967	*Tuolumne....	1,500
*Colusa.....	1,846	*Keswick.....	200	*Pittsburg.....	4,715	*Turlock.....	3,394
*Concord.....	912	*King City.....	1,048	*Pleasanton...	991	*Vacaville.....	1,254
*Cordelia.....	300	*Knights Land-	200	*Port Costa...	900	*Vallejo.....	21,107
*Corning.....	1,449	*ing.....	400	*Princeton.....	300	*Vina.....	300
*Corte Madera..	607	*La Grange.....	200	*Red Bluff.....	3,104	*Vineburg.....	200
*Cotati.....	300	*Larkspur.....	612	*Redding.....	2,962	*Walnut Creek..	538
*Cottonwood....	500	*Lathrop.....	600	*Redwood City	4,020	*Warm Springs.	200
*Coyote.....	200	*Lewiston.....	200	*Richmond.....	16,843	*Waterford.....	250
*Crockett.....	1,500	*Lincoln.....	1,325	*Rio Vista.....	1,104	*Watsonville...	5,013
*Crow's Landing	300	*Live Oak.....	300	*Ripon.....	500	*Wheatland....	435
*Daly City.....	3,779	*Livermore.....	1,916	*Riverbank.....	200	*Williams.....	650
*Danville.....	400	*Lomita Park...	600	*Rocklin.....	643	*Willows.....	2,190
*Davenport.....	300	*Loomis.....	500	*Rodeo.....	300	*Winters.....	903
*Davis.....	939	*Los Altos.....	500	*Roseville.....	4,477	*Woodland.....	4,147
*Decoto.....	300	*Los Gatos.....	2,317	*Ross.....	727	*Woodside.....	300
*Del Monte.....	300	*Los Molinos...	200	*Sacramento...	65,908	*Yolo.....	350
*Denair.....	200	*Madison.....	300	*Salinas.....	4,308	*Yuba City....	1,708
*Dixon.....	926	*Manteca.....	1,286	*San Andreas...	1,183		
*Drytown.....	200	*Mare Island...	600	*San Anselmo...	2,475		
*Duncan's Mills	250	*Martinez.....	3,858	*San Bruno.....	1,562		
*Durham.....	250	*Marysville....	5,461	*San Francisco.	506,676		
*Dutch Flat....	750	*Maxwell.....	500	*San Jose.....	39,642		
*Eldridge.....	500	*Mayfield.....	1,127	*San Juan.....	350		
*El Cerrito.....	1,505	*Menlo Park....	900				
*Elmira.....	350						

Unmarked—Electricity only.

—Gas only.

—Gas and Electricity.

—Gas, Electricity and Water.

—Gas, Elect. and St. Railways.

—Electricity and Water.

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"The last of life, for which the first was made."

Golden hours these, in the twilight of life, when cares and troubles have passed and in their stead come contentment, rest and peace with all the world. The struggle of life in the busy world goes on but only its distant murmur reaches the ears of those who in their yesterdays provided for the tomorrows they realized were bound to come.

Have YOU provided for YOUR tomorrows by investing regularly a portion of your income in some safe and enduring investment? A regular monthly payment on Pacific Gas and Electric Company's First Preferred Stock will enable you to earn the reward of thrift through the declining years.



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VIEW OF MT. SHASTA FROM THE PIT RIVER RAILROAD

Vol
14

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No
8

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Pacific Service Magazine

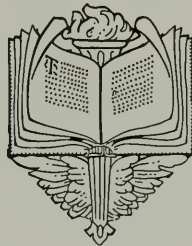
Volume XIV



Number 8

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"PACIFIC SERVICE" owns and operates the street railroad system in the capital city of Sacramento. The center view in this group is of the company's office building, on Eleventh and K streets; at upper left is the electric substation, on Sixth and H streets; at upper right Station "B", the steam electric generating station on the river bank; at lower left and right are views of the street railroad car barns at Twenty-ninth and M streets.

The Development and Operation of Our Street Railway System in Sacramento

By J. O. TOBEY

Superintendent Sacramento Division



One of the recently redesigned large cars being operated with one man

"Pacific Service" owns and operates a real up-to-date street railway system in the capital city of California. In order that the readers of PACIFIC SERVICE MAGAZINE may be more familiar with the progress and activities of this branch of our Company's business, it is thought that a little enlightenment on the subject will be of interest.

To delve into the street railway's early history necessitates our going back to the latter part of the year 1858, at which time we find a horse drawn bus or cab line operating along K street from Third and thence out to Third and R streets. This line, although infrequently operated, answered the purpose of a transportation medium to a pleasure resort known as Hubbard's Park. Another horse drawn bus line was also operating along K street from the Sacramento river to Sutter's Fort, on Twenty-eighth street. It is quite possible that the manager of this line held at that time the same distinction as Henry Ford now enjoys, of being the only man who ever succeeded in making

walking a pleasure. Some three years later a franchise was granted for a street car line but for reasons now unknown it was never constructed. Along in 1868 the Central Pacific transcontinental railroad was completed, with Sacramento, then a flourishing little city of some 20,000 inhabitants, for its Western terminal.

In March of 1868 the supervisors of Sacramento County, invested with legal powers by enactment of the State Legislature, granted a real street-car franchise for a 25-year period, permitting the operation of a horse-car line from the river to Twentieth and G streets, at that time somewhat of a suburban locality. The fare on this line was to be ten cents. During the next two years the horse car companies were reorganized, additional franchises were obtained and eight little twelve-passenger horse cars were shipped from a San Francisco factory to Sacramento for use on the tracks that were being constructed. In August of 1870 these cars were placed in service as one-man, one horsepower cars, charging a five-cent fare. The owners of this early day enterprise found it pretty "tough sledding" financially for nearly a decade, and it was not until 1880 that any further franchise privileges were sought. At this time about fourteen blocks of track were constructed on Tenth street.

Nearly ten years more passed without any noteworthy developments until the year 1887, at which time the electric

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One of four Birney safety one-man cars purchased in 1916

storage battery had become a commercial product and some of the former horse-cars were equipped with this new form of motive power. These were not a financial success, however, and in 1890 the overhead trolley was strung and connected to steam-operated electric generators. This was a long step forward in electric transportation.

In November of 1892 the Sacramento Electric Power & Light Company, organized by Albert Gallatin and the Livermore brothers, took over the struggling little street car system with its assortment of trolley cars, storage battery cars and horse cars, and started to develop a modern street railway system. In 1893 the Sacramento Electric Power & Light Company consolidated with the Folsom Water Power Company, which had already laid plans for the development of electricity by water power at Folsom, a town about twenty-two miles east of Sacramento, and having a population of some two thousand. The Folsom plant, which was substantially the same then as now, was started in operation in July, 1895, and on Admission day of that year one of the most wonderful pageants of that period was held in Sacramento in celebration of the advent of long distance transmission of electrical energy. It was a world's record for that period and the pageant of nearly thirty years ago is often spoken of today by some of the older residents of Sacramento as the

most wonderful event in the City's history.

Following the advent of the delivery of electric energy in Sacramento from Folsom the trolley driven street car became a pronounced success, and by 1901 the company then known as the Sacramento Electric Gas & Railway Company had established its own car shops and was manufacturing its own cars as occasion demanded. Cars were also built in their shops for other California companies, and even today some of these cars may be found in operation in Bakersfield, Santa Cruz, San Jose and Palo Alto.

In June of 1902 the Bay Counties Power Company affiliated with the Sacramento Electric Gas & Railway Company in the combine known as the California Gas & Electric Corporation, and in 1905 the Pacific Gas and Electric Company was organized. In this way the Sacramento street railway system became a part of "Pacific Service."

It is obviously a simple matter for any industry which has always enjoyed even a limited amount of financial prosperity to continue to build up and keep all of its properties and equipment in first class up-to-date condition. In the street railway business, however, throughout the nation, progress has been somewhat hampered by automobile competition, high labor and material costs and, last but not least, the impossibility in many



One of our improved type Birney safety cars purchased in 1920

cases, of increasing revenues through the method usually employed by private industries, namely, increasing the price of the commodity offered for sale. In our case the fare could not be increased above the five cents per ride which was the price charged at the time of its very beginning and at which time both labor and material costs were more than fifty per cent lower, on an average, than now.

Nevertheless, regardless of these handicaps, our system has made a much better financial showing and has kept its equipment and properties in a much better condition than ninety-five per cent of the other roads of the country today. But, in order to do this it has been necessary to practice rigid economy and establish the utmost efficiency in all branches of the system. One of the steps taken toward safe and efficient operation was the purchase by the Company during 1916 of four cars of a different type than had previously been used and which were known as the Birney safety cars. These were operated by one man instead of two, and their power consumption scarcely amounted to one-half of that used by their larger brothers. They are the last word in modern constructive intelligence. No car can be started without all doors being closed, nor can the doors be opened without the car first being stopped. This avoids many accidents so common to passengers getting on or off with the



Double crossing at 7th and K streets. Made up and installed by track department. Joints "Thermit" welded

cars in motion. The safety cars, also, are so arranged that if the motorman operating the car should become suddenly ill or for any reason be unable to stop the car, this function is accomplished automatically for as soon as the pressure of his hand is released from the controller handle the power is automatically thrown off, the air brakes applied, the tracks are sanded and the doors are opened. This makes the car in every sense the "safety car" which it has proven to be. The results achieved by these four trial cars were such as to warrant the purchase of six more which were put in service November 30th, 1920, and which proved more popular with our car patrons owing to improved design and appearance and better riding facilities.

The success met with in the operation of these ten one-man safety cars was such as to warrant a recommendation to our company's management that some of our larger cars be changed from rope-brake to air-brake and that automatic safety devices be placed on them similar to those installed in the Birney safety cars. This arrangement would make the large cars equally safe with either one man or two man operation. An authorization to proceed with seven of these cars was received on March 18th of this year, and at the present writing all of them have been completed and are in



25 passenger bus used for street car extensions. Body built in company's Sacramento shops



Electric welding machine in operation. Used in building up worn rails, switches, frogs, etc.

service. The redesigned car, although carrying nearly double the number of passengers, is found to be equally as safe and dependable as the smaller Birney safety cars, while owing to its larger size and double trucks it is easier riding and generally more comfortable, due to its being less congested, especially at the doorways. Some of the principal advantages gained through the redesigning of the larger cars are:

1. Elimination of public criticism through replacing rope brakes with air.

2. Absolute safety to passengers through installation of safety devices.

3. Rounded ends instead of square, resulting in improved appearance and more comfort to motormen in cold weather.

4. Double doors in front, allowing passengers to get off and on at the same time when used as a one man car, thus saving time.

5. When operated with one man, all doors are locked and cannot be opened until car is stopped.

6. Illuminated destination sign on top of car which is plainly visible day or night; its view cannot be obstructed by any kind of vehicular traffic.

7. Steps folded, except when doors are open, resulting in easier operation through congested traffic and reduction of step collisions, generally quite common.

Some three or four years ago it was determined that the method of fare col-

lection, together with the open type cars in use at that time was not to the company's advantage, as on crowded cars the conductor in passing through would frequently miss a passenger, entailing some loss of revenue. Also, there were numerous accidents from passengers stepping or falling from the open-sided platforms of the cars. Steps were accordingly taken to enclose the platform sections of the cars with a heavy wire screen, with doors conveniently placed for exit and entrance. As rapidly as the cars were equipped in this manner the method of collecting fares was changed and passengers were required to drop their fares in the fare box as they entered the car. This effected an increase in receipts and also eliminated many platform accidents.

A standard method of painting was adopted in March of 1920, at which time a good quality of paint which would stand up well under our Sacramento climatic conditions was decided upon. At that time a painting schedule was made effective which provided that each car should pass through the paint shop every two years. It has been determined that by keeping the cars well washed and cleaned in the meantime this method will keep the appearance of all cars up to a high standard.

In endeavoring to keep down construction and maintenance costs during the World War and subsequently, dur-



Portable Air Compressor operated by electric power from trolley wire. Used for driving air guns for ripping up concrete base in streets

ing which period both material and labor costs soared to heights never before experienced by electric traction systems, it was found that more efficient methods had to be adopted than had previously been practiced. One of the methods of accomplishing this on track and shop repair work was through the construction in our own shops, from equipment procured from our supply departments, of an electric welding machine. The actual cash outlay on this outfit was very trivial when compared with the large savings effected through repair work that has been handled with it during the past three years. The taking out and replacing of worn rails, frogs, switches, etc., was made in a large measure unnecessary, as worn parts were quickly and cheaply repaired by welding on additional metal with this machine. In many cases the repaired parts were made equally as good as new without the expense of replacement while the costly delays to car service which necessarily follow the removal of any of the track work were avoided. Electric welding of motor frames, truck frames and even rail joints is now being very quickly and easily done with a substantial saving in each case. In modern practice the electric welding machine is as necessary to a street railway as is a cook stove to a kitchen. Another form of welding known as "thermit" welding has also been adopted for making up track crossings, frogs, etc. This was recently used in making up our own crossing for Seventh and K streets, effecting a saving in original cost and avoiding a long delay while awaiting for a manufactured crossing to come from the East.

In making repairs to our road beds considerable time and labor have been saved by the use of an air compressor, with air hammers and chisels for breaking up the concrete or asphalt pavement.

In our carpenter and machine shops additional tools, such as metal shears, pipecutting and threading machines, etc., have been installed in order to facilitate the handling of work. Better lighting for our boys in the shops has also been given attention and more improvements are now in progress.

It has been necessary for some time to supplement our street car service, in two parts of the city, by busses which in a measure act as feeder lines to our main system. Although this has never been a profitable branch of the system, it has been found necessary from the standpoint of service, as the bus routes extend through quite a thickly populated part of the city. Two busses are operated daily on regular fixed schedules. In order that one of our older busses could be replaced with more adequate equipment, the management authorized the purchase of a special bus chassis made by the White Company, and the construction of a body in our car shops to mount on the chassis. Although the construction of bus bodies was rather out of our line of work, still the combined efforts of all resulted in a very pleasing looking vehicle capable of seating 25 people and standing nearly as many more. In the entire design of the bus durability was the first thought, and it is estimated that both chassis and body are sufficiently substantial to warrant a life of half a million miles.

It is needless to say that without the untiring efforts and loyal co-operation shown by the entire personnel of the railway department organization the problems met with in the general improvement scheme could not have been solved. Without such solution the service to our street car patrons in Sacramento would have been impaired, while the cost of keeping the cars running would have materially increased.

Pit River Canyon; A Story of The Long Ago

By J. R. SCUPHAM

(Continued from December Issue)



J. R. SCUPHAM
at the age of 81 years

ing in the sunshine like lizards, with all our wet traps spread out to dry.

We were camped on a little flat covered with great pines and firs. On the south side the cliffs, though steep, were covered with a dense growth, composed principally of ceanothus — brush and young firs; but on the north side the cliffs were too steep for vegetation, showing the formation to be coarse gray sandstones, hard brittle slates, and above them a deep cap of lava. While I was tracing with the eye the flexures of the contorted slate strata, an eagle darted down and seized some animal among the rocks. For a moment there was a struggle, then both combatants rolled down the talus a short distance, when the eagle let go and, after wheeling round the spot once, soared over to the top of a pine-tree on our side of the river. The animal that foiled his attack so completely I think must have been a badger, but I could not be certain from where I was lying.

Shortly below the mouth of Burney creek the Pit river plunges in between high mountain walls, a rapid, winding stream, and at many a point our nerves were tried by the thickening dangers around us. Many a Scylla and Charybdis yawned for our little craft, but by the middle of the afternoon we had penetrated about five miles into this canyon in safety and, as everything was soaked with water, I judged it well to camp and get dry. As I went forward to examine a little flat for a good spot to camp, I came upon two large otters swimming close to the shore, in their tawny summer fur looking exactly like lions in color. I shot one and was so eager to secure it that I got into the water beyond my depth, and in the struggle with the wounded animal was being carried down into the rapid below. Only by drifting against a rock did I escape the danger. I climbed on to this boulder, and, leaping as far as possible toward shore, swam out. The rest of the day was spent bask-

The next day we made about twelve miles, the whole distance through a canyon like that already described. This was a hard day's work. The distance made was so short because we found it necessary to go forward often and reconnoitre the rapids in order to find a way through among the rocks. The speed of the boat when in the current was so great that there was no time to look for a channel, and a mistake at any point might be destruction. Often, in going forward to see the rapids we had to climb along the face of a sheer precipice or over some talus of broken rocks, so steep that any displacement of the rocks in stepping would bring a slide down from hundreds of feet above, threatening to hurl us into the river below.

Soaking wet, as usual, we were glad to camp by the middle of the afternoon. Above the camp was a little terrace notched in the mountain's side, shaded

with fir-trees. From this spot I startled a herd of deer, and saw from the number of deer-beds that it must be a favorite place of repose for them. After running up the slope a short distance two of the bucks stopped to watch me; though I fired twice at some quail they still remained, but were gone when Jim came back with the rifle. Our fire was built between a great yellow pine and a cedar. On both of these trees were the fresh marks of a grizzly's claws. These animals seem to have a habit of tearing and scratching at the bark of trees, apparently for the exercise of their claws.

Two more days of canyon navigation passed, so fraught with dangers and excitements that we could only note in a general way the changes in the geological formation. The lava-cap changed to a porphylyte, then disappeared. Limestones, as well as slates and sandstones, appeared in the cliffs. On the third day a great wedge of granite was passed. The evening of that day found us camped on the north bank among some oak-trees. The main course of the river was still south of west. I had expected before this to find it bearing northward. Anxious to see ahead, I took my rifle and started to climb a near peak. The flat on which we were camped was 100 acres or more in extent, and bore a scattered growth of white-oaks. After climbing several hundred feet up a steep slope covered with cherry and wild-plum bushes, I came to another similar flat. Following the ridge still higher, I soon got among the firs and pines again. I saw abundance of deer-tracks, yet no deer; but a black bear jumped from a log on which he had been standing watching me and made his escape into the manzanita thicket.

After a long climb I reached a point from which I had a view both up and down the river. I was half-way up what I found to be a mountain, and it was just sunset. The grandeur of the view I enjoyed would take long to describe.

What pleased me most was to see that below me the river's winding course bore a little north of the setting sun, so I thought I could nearly tell the point in the canyon we had reached. I noticed that below us in the river the rapids still occurred very frequently, three or four in every mile. Just beyond me rose another mountain, with sides of dark, rugged rocks. At the foot of this mountain the river wound with many sharp curves and bends, giving promise of whirlpools and dangers to come.

On my return to camp I found that Mr. Lieber and Jim had captured a string of fine, large trout, and with these, our game and Hilda's excellent bread we had just such a dinner as we needed and were in the right spirit to enjoy our camp-fire, chatting until late in the night. It was well we enjoyed that night, for it was our last pleasant camp. Many a saying of that night was impressed on my memory by the event that followed.

Next morning we embarked as usual and turned many a curve and bend and shot down many rapids, until I knew we were winding along the foot of the high mountain I had noticed the evening before. As we glided along we came to a little flat formed by a landslide, a portion of which had been cut off by an arm of the river, making a narrow island. Just below the island was a sharp bend and a rapid. As we neared the head of the island the Indians called out "knope, knope" (deer), and pointed to a buck feeding on the little flat. I ran the boat into the bank and, taking the rifle, jumped ashore, intending to get a shot at the deer and then go down and measure the angle in the river. The deer was startled and got away, so I told them to go on down and wait for me below the rapid. Jim sent Hilda ashore to walk past this more than usually rough passage, and gave her the shot-gun to carry. This proved a most fortunate circumstance for us.

The bank of the river at the bend was a precipice. I had to climb some 200 feet on the rocks to get past it. While upon the rocks measuring the angle of the river, I saw the boat coming down the main channel, which was there close to the island. Some long alder-boughs overhung the channel, and Lieber had leaned back to avoid them, and lay there with folded arms as the boat shot down. Jim, too, I noticed had stopped paddling. I was startled at the risk they ran in drifting down such a dangerous rapid without headway enough with which to steer. On they came, dashing down with fearful speed among the foam toward the cliff beneath me. Suddenly Lieber appeared to see some danger, and sprang to the bow with his paddle. At that moment the boat disappeared from my sight under the brow of the rocks. I watched eagerly for their re-appearance round the bend, but the next thing I saw was blankets, paddles and broken boards drifting down among the foam. "Smashed to pieces," I involuntarily exclaimed, as I threw away my rifle and rushed down over the rocks to the water's edge. My clothes were stripped off in a moment, and just then I caught sight of Jim's black head as he clambored out upon a rock. "Where is Lieber?" I shouted. At the same moment our blankets came drifting by, and I plunged in to rescue them. I drifted some distance down before I could reach the rocks again. Jim hauled the blankets up, and as soon as I could climb out, I again asked him where Lieber was. "We will never see Lieber any more," he replied at the same time running excitedly up toward the foot of the precipice, against which the water plunged and roared. I was shocked at this confirmation of my worst fears and followed him as fast as I could along the rocks up toward where the boat had struck. By jumping in and swimming in the eddy close to the rock, I got past the angle of the wall and could see over the whole rapid. No Lieber was in sight. Allowing myself to

drift down again, I sent Jim to a point some hundred yards below, while I took my station at the foot of the rapid to watch for any sign of the missing man. Long, long we watched, while the waters roared and foamed past us; the last fragment of our poor boat had long gone by, but no vestige of my comrade was to be seen. While I sat and began to realize that his brave, cheerful face was hidden by those rushing waters forever, a feeling of utter desolation came over me. My mind was full of regrets. Above all I regretted that I had left the boat when there was any danger to be encountered.

William Lieber was a German by birth, and just in the prime of young manhood. In his short life he had traveled and studied in many lands. He was a taxidermist by profession, and was a devoted naturalist. His love for science and the hope of collecting rare specimens led him to volunteer on this expedition, and to face all its dangers and hardships. Throughout he was active, brave and patient. It was sad, indeed that one with so many good and promising qualities should so early perish.

All hope of ever seeing him was long past before Jim and Hilda came up to ask what we should do. Jim had rescued our saddle-bags and a small sack of flour that had been tied to one of the seats. I told him we must spread out what we had saved to dry. While it was drying on the warm rocks I felt glad I could watch the water a little longer. I could not bear to think that our comrade must be abandoned to the whirlpool.

Evening came on at last, and we carried what was left of our effects to a little strip of beach at the head of the next rapid, and there made our desolate camp. Next morning our first thought was to search the shore and the rocks where the drift came in, but nothing more was seen. We were in a sad predicament. Without means of transportation, on the north or uninhabited side

of the river, in the middle of the canyon, the country about us a nest of steep rocky mountains, their sides covered with dense thickets of manzanita and ceanothus almost impenetrable. Nearly destitute of food, all our cooking utensils gone, our only resource was the guns and some ammunition that by chance we had ashore at the time of the wreck. We made our effects into three packs and, each one shouldering a load, we sorrowfully moved away.

We soon found it to be impossible to follow down the river, cliffs and precipices compelling us to go higher and higher up the mountain, until at last we found that the best we could do was to follow the spur we were on to the very top. And thus, as my barometer showed, for 2,800 feet in height we toiled over the rocks and through the chaparral until, tired and parched with thirst, we reached the top. In our toilsome ascent I could not help but notice the endurance and courage of the Indian girl. With a pack heavier than mine she bore it with less fatigue, and even on the most difficult slopes coolly avoided the rocks that I unavoidably dislodged.

Once on the top we found we were on a ridge that at this point receded from the river, sweeping away to the northward in a great curve. At one point on the slope a slide had occurred, exposing the strata for a mile across, showing the rocks to be white almost as snow; probably another of those infusorial deposits already mentioned.

As soon as Jim saw this he exclaimed: "Paas Bully; I know this place; it is Paas Bully. Winton yahmin (Indian road) over there"—indicating the place beyond the slide—"Cherri-poem is not very far." I was very glad to hear this, for I judged that Cherri-poem (sandy place) must be in the Big Bend, and was, I knew, an Indian crossing-place. If necessary, I thought, we could reach the stage-road from there. However, we had not yet reached Cherri-poem, and we were parched with thirst. Far below us I could see a little flat formed by a land-slide, and the dense growth

of verdure with which it was covered led me to think that we would find water there. On reaching it we found it covered with a growth of maples and oaks, and under these a dense growth of ferns and large-leaved plants. Bear and deer had broken their way through in different directions. Following on one of these trails we soon found the much-needed water.

We had to toil over another high ridge before we could get down to the banks of the river again. The western slope of this last ridge was exceedingly steep, almost a precipice for 1,800 feet. It was with great difficulty, burdened as we were, that we made the descent. Before we were half-way down, Hilda discovered Indians crossing the river. Although Jim was afraid I was too eager to see anyone who could help us to let them go. So I shouted and my shout was answered from beneath. But it was a long time before we got down to the river's bank. There we were confronted by two Indians armed with rifles. Jim addressed them, but they could not understand him. I went up to one and, throwing down my pack, told him in English and by signs to take it up and lead us across the river. After some hesitation he handed his rifle to his companion, took up my bundle, and marched on down the river. Then they pulled out a canoe that was hidden among the willows, and in two trips we were all landed on the other side. As soon as we landed more armed Indians came out of the bushes and squatted down in front of us. We found they were disposed to keep us there, penned in, with our backs to the river.

I was not much afraid of them, for I did not think they would dare to injure us. Judging that some of them could understand more English than they pretended, I told them that I had come down the river in a boat and that my boat had been broken; and I wanted them to pack my camp to Cherri-poem. Thereupon a long discussion arose which we were obliged to listen to without knowing a word that was said. Evi-

dently they regarded us as waifs of the river, very much as the old wreckers used to look upon the unfortunates who had drifted to their beach. Perhaps if I had been alone I would have met a better reception, but coming in company with the helpless Wintoons, their quasi-enemies, they were not sure just how to treat us. At last two more Indians came up. Jim sprang to his feet when he saw them, exclaiming, "Hullo, Tom!" A fine-looking Indian, with a wondering expression of pleased recognition, came forward and sat down beside us. Jim and he began to talk with great rapidity. Jim was evidently much pleased. At last he turned to me, and explained: "He my friend. He half-breed Wintoon." I was much pleased, too, for I saw at once that Tom was a man of influence.

After some more talk the Indians went off and, Tom taking up my pack, we followed them, and soon reached a place where they had made their camp. Here we found two squaws broiling salmon on the coals. With a keen relish I sat down beside the fire and ate salmon straight from a piece of bark. Jim and Tom talked incessantly. At last Jim got up and told me they were ready to take me to Cherri-poem, and that it was not very far. I thought it far enough before I reached there, and I went to sleep that night thankful for the favorable future prospects.

Cherri-poem, the Big Bend of the Pit River, is a remarkable locality. At this sharp turn from a northerly to a southerly direction the river is clear of canyon for about six miles. On the right bank the receding hills leave a beautiful little valley, containing a small lake that empties into the river through a creek about two miles long. In this valley a Russian, named Koske, and a Dane are living a sort of hermit life, subsisting, as I found, in dirt and discomfort, on a few vegetables and chickens, while they looked after a small band of stock.

I found the cretaceous coal-measures cropping out in a ridge of hills that divides the valley, and on the south bank

I found a remarkable boiling-spring, coming up right in the bed of a beautiful little trout-stream within a few feet of where it falls in a small cascade over some rocks into the river, the hot and cold water so mingling that some fish we frightened down the stream came to the surface dead, having swam into an ascending jet of boiling water.

After some time spent at Cherri-poem in exploring the vicinity, I started southward to examine the lower half of the Pit River canyon. I had hired Tom to pack for me and expected that some of his family would go along, but was hardly prepared for the retinue of Pushoosh that mustered round us that morning—six or eight bucks, with some ponies and two squaws. I had procured a pony to ride, and rather enjoyed the cavalcade as we wound along in Indian file under the oaks.

A series of terraces stretch back from the river, covered with a growth of handsome white oaks. The trees we passed were often laden with acorns and were pointed to by the Indians with great satisfaction. The young men scattered as we marched along and, rushing about with shouting and laughter, treed the gray squirrels and then called on me to shoot them.

I made my way at intervals to points where I could look down on the river. The lava-flood had not reached so far as this point, but the strata were much contorted and metamorphosed. Great landslides had terraced the slopes everywhere. These terraces often contained little lakelets surrounded by willows, and had slopes covered with a mingled growth of oak and maple (*acer macrophyllum*). After we had reached the altitude of the pine forests and looked through vistas of giant sugar-pines down on this brilliant deciduous foliage, it formed the foreground of one of the loveliest views in California. Beyond, across miles of empty air, rose range on range of lofty mountains, with Mount Shasta about twenty-five miles away, towering over all, its pink-white cone seeming more a thing of the sky than

of the earth. As the rest of my journey was mostly along the mountain tops, these magnificent panoramas were constantly grouping themselves before us in unending changes.

On the third day I got rid of my Pushoosh followers, with the exception of Tom, and in the evening crossed the river at Brock's place. James Brock is a hunter by profession, and has located in one of the most inaccessible nooks on the banks of the Pit. He has had a rough experience in his constant warfare waged against wild beasts and wild Indians. His cabin is adorned with numerous trophies of his prowess—among them a string, two yards long, of the claws of bears he has slain.

The canyon proper extends below Brock's place. Indeed, the river-channel has that character as far as the mouth of Squaw creek, twelve miles farther down. Through the canyon the Pit river is a stream about sixty yards broad, with a channel often from ten to twelve feet deep, even at low water. The whole distance is full of rapids, averaging in number about three to every mile. The passage of these rapids in a boat is barely possible, but would require the exercise of ceaseless vigilance and great skill. The rise of the river at high water is small above the mouth of Squaw creek, owing to the fact that the tributaries are mostly subterranean streams, but little affected by the rain-fall, while the area of watershed in the canyon is very small. The water in the river is always clear and cool, and is well adapted for the habitat of fish of the salmonoid kind. It contains at present two species of trout and is sparsely stocked with salmon, which have their period of spawning about the first of October, at least a month later than in the Sacramento and McCloud rivers. The capacity of Pit river to furnish spawning-ground for salmon is very great, and should the State expend a little money on artificial propagation of salmon in these waters it might add some millions to the yearly catch at the mouth of the Sacramento river.

While encamped at Brock's I reconnoitered the canyon below, and so was prepared to take the trail over the mountains and down Squaw creek to Silverthorn's, making the distance in one day. Coming down Squaw creek we passed many deserted houses and saw gardens and fields that had lapsed back to a state of nature, the manzanita and buckeye rapidly recovering the ground from which they had been cleared and choking out the intruding rosebushes and peach-trees. The abandoned towns of Pittsburg and Copper City were passed with their still ungathered bonanzas. For miles along the creek at this point copper and silver bearing rock crops out. All along, the water from the springs is so strongly impregnated with copper that it can not be used.

Near the mouth of Squaw creek we found the Wintoons assembling for a great dance, to celebrate the ripening of the manzanita-berries. There are two kinds of manzanita-berries; out of one of these the Indians make a sort of wine which they had on this occasion in large quantities. They were all delighted to see Jim return from what they regarded as a hazardous trip. My Indians stopped to partake of the feast and relate their adventures, leaving me to ride down to Doctor Silverthorn's alone.

When the doctor saw me coming down unaccompanied he suspected some mishap had befallen us, and crossed over in his canoe to meet me. Mr. Lieber's death was a source of deep regret to him, as he felt in part responsible for having recommended the attempt to navigate the river. I assured him that I still considered the descent of the river possible, that we knew the enterprise to be a dangerous one, and went prepared to take the attendant risks.

That night I spent at the Doctor's and next day reached the State road at the United States Fishery, and was once more within reach of civilization. During the trip we had gone through more than ninety miles of canyon, sixty miles of which had never before been consecutively explored.

OUR "PACIFIC SERVICE" EMPLOYEES ASSOCIATION

The Christmas show, now an established and accepted annual event of our Association's activities, was presented on the evening of December 15th at the Oakland Auditorium theatre, with every seat occupied and even standing room at a premium.

The play, from the pen of Van E. Britton, exhaled from prologue to final curtain the age-old, yet ever new and inspiring Christmas message of "Peace on Earth—Good Will Toward Men." In a prologue and five episodes it traced the evolution of the Christmas spirit through other times and other lands, reaching its climax in the last scene with the Christmas of today in our own California. Original in conception, prettily staged and costumed, well acted and well sung, the production was a credit to its author, who was, indeed, its director as well.

The prologue, suggestive of the allegorical characters in the play, was enacted by its three guiding spirits, the Spirit of Christmas, supported and strengthened by Faith and Love.

In episode one were enacted the familiar and beloved scenes of the first Christmas. In the dark of the plains of Bethlehem the bright guiding rays of a



EPISODE IV.—SOUTHERN CHRISTMAS SCENE

(Reading from Left to Right—Pickaninny-by himself, Messrs. Clark, Jones and Black, Harry Slodderman, Mrs. Mary Cowell, Jeff Smith and Agnes Buckingham)

star shone out, leading the three wise men toward the manger-bed. Leon Mills, in the role of the Shepherd, charmed his audience with his clear tenor voice in "The Star of Bethlehem." The episode closed with the singing of the Hallelujah chorus by the entire company, invisible.

The second episode told the story of the legendary origin of Santa Claus. The scene was laid in Norseland; time, the tenth century. Born of Norss (which means Faith) and Faia (which means Love), Claus, their son, conceives the idea of expressing the Christmas spirit by an interchange of gifts. In the execution of this idea he calls upon Titania, queen of the fairies, and the Snow King for assistance. These all powerful forces summon to his aid all the fairies, the gnomes, the water

sprites, the flowers and the elves. Even the four winds that blow render him help. And so, the first toys are made, the first sleigh for the distribution of gifts is built and the Snow King, with the aid of the four winds, agrees to deposit a blanket of snow over the earth to afford easy progress on the journey. A pretty musical number was "Little Tin Soldier," sung by the Rag Doll (Leona Calhoun), and the Tin Soldier (Eloise Gibbs).

Episode three disclosed the lofty banquet hall of an English home in the year 1722, with the family grouped about the festive board, Friars seeking shelter for the night entertained the guests with song. Friar Tuck's song from Robin Hood," rendered by A. C. Archbold, in a deep bass, was well sung and enthusiastically received. Other musical numbers were "The Rosary," by Guenivere (Grace Buckingham), and "Drink to Me Only With Thine Eyes," by the Friars, Messrs. Archbold, Jackson, Johnson and Mills.

In the fourth episode the scene was laid on a southern plantation in 1822. The colonel (Harry Fledderman) distributed Christmas gifts and words of

cheer to his slaves, who sang old time southern melodies. "Pickaninny" Rose introduced the only bit of comedy in the play with his singing of "Li'l Liza Jane," and was recalled for several encores.

The fifth and last episode disclosed a California Christmas scene in the year 1922, expressing the Christmas spirit of employer with employee. Musical numbers were "Three o'clock in the Morning," chorus by entire company; "Love Is in the Wind," by Anatasias Smith; "Mandalay," by Vera Hamilton, and "Chon Kina," by Violet Buckingham. The ever popular Floradora sextette was danced and sung by Misses Gordon, Hall, Meehan, Narinian, Riley and Woodward, and Messrs. Jackson, Johnson, Mills, Moore, Raine and Smith.

An unusual and dramatic climax came at the end of the episode when, after Santa Claus in the person of Mr. John A. Britton, had arrived on a sleigh drawn by twelve pretty girls, the back drop rose, disclosing the big auditorium beyond with a huge Christmas tree in its center. The audience then crossed the footlights and gathered about the

tree where Santa Claus distributed gifts to the children. Dancing followed, which continued until midnight.

The production was under the supervision of a special committee, consisting of R. W. DuVal, chairman; J. S. Worthington, vice-chairman; J. C. Jordan, house; H. W. Beekman, music; E. C. Johnson, dance; Van E. Britton, director of production; Harry Preston, stage



FINAL EPISODE—JOHN A. BRITTON AS SANTA CLAUS

In the foreground are Brownies, Gnomes, Water Sprites, Flowers and Elves.

In the background are Queen of the Fairies and her retinue and one of the Three Wise Men



"PACIFIC SERVICE"

Entire Cast of "Christmas Show" Produced by Members of the Pacific Service

The affair was under the direction of Van E. Britton, who is seen in the background supported by the Brownies, Gnomes, Flowers, Elves, Santa Claus, Water Sprites, Animals. In the second row Herald and Harp players in the 1922 Christmas and Harpists. In the last row are members of the



"DANCE" AT PLAY

Service Employees' Association at Oakland Auditorium, December 15, 1922

Far Winds, Anastasia Smith, Vera Hamilton, May McClelland, Violet Buckingham. In the first row are English Maidens, the Wise Men, Toys, Queen of the Fairies, Southern Colonel, Wife and Family and participants of the Boradora Sextette and members of the English Household and Dixie Darkies.

manager; Homer Keesling, electrician; Wm. Reinhardt, properties; Neil Munro, head usher.

Santa Claus came to gladden the hearts of the children of San Francisco section on Friday evening, Dec. 22nd, at Sorosis Club Hall. The educational Committee of the San Francisco section had secured through courtesy of the Spring Valley Water Company berries and greens with which they transferred the hall into a Christmas fairyland for the children. A large Christmas tree brought down from the mountains and set up in one corner of the hall, decorated with ornaments and many small electric lights, heightened the effect.

A program under the direction of Jim Williams was put on for the special benefit of the children. It opened with a choir of fifteen boys from the Cathedral Mission Church. A Maggie and Jiggs skit brought forth many howls of delight from the younger members in the audience. Following is the cast:

Jiggs	Mr. Ben Cadwell
Maggie	Mr. E. H. Murphy
Maid	Miss Alma Tilley
Maggie's voice	Miss M. Gray

Little Miss Ernestine Salz, dressed like a fairy, danced in a clever and accomplished manner. She was followed by diminutive Gladys McChesney, who impersonated, to the great delight of the audience, the characteristic style of speech of various nationalities. Also, Miss Alice Luthi, a child dancer of remarkable accomplishments, performed for the pleasure of the children. The final number on the program was a one act play depicting the "Night Before Christmas." The characters were:

Mother, Miss Camille Looney; Children, Clyde Lam and Lucille Harrison; Pianist, Miss Leona Robinson; Old St. Nicholas, Mr. Henry Bostwick.

Miss Looney recited during the progress of the play that old poem, "The Night Before Christmas."

While the children expectantly awaited the arrival of Santa Claus, the jingle of bells was heard in the distance and down through the fireplace came Santa.

No one would know that this prosperous and happy St. Nick was our genial Manager, Mr. Henry Bostwick. Santa Claus himself must have looked with envy upon his rival. After a short address of welcome and good cheers for the coming year by Santa Claus, candy and gifts were distributed to the children.

It was a fine night, and the holiday season brought out one of the largest gatherings of the section's activities during the year and taxed the capacity of the hall to its utmost. In spite of the large crowd the children secured their toys and candy and left with happy hearts and beaming faces. The Educational Committee having this affair in charge was composed of the following members:

P. E. Chapman, Chairman; F. J. Lytle, Spencer Moore, J. W. Ellis, Fred Seeba, J. M. Williams, C. Z. Yost, C. A. Losh.

At the conclusion of the program the committee members presented Mr. Chapman with a solid silver picture frame as a token of their esteem.

Chairman J. S. Worthington has announced his appointees to the chairmanship of the various committees of the parent body organization for the year 1923. Following is the personnel of the working organization:

ATTORNEY—R. W. DuVal.

AUDITOR—Walter Agnew.

EXECUTIVE COMMITTEE—W. H. Cohick, Chas. Suydam, Walter Sultan, H. W. Beekman, J. A. Johnson, Roy Cowles, T. B. Copeland, P. E. Chapman.

COMMITTEE CHAIRMEN—*Sectional Activities*, A. U. Brandt; *Educational*, P. E. Chapman; *Benefit and Loan*, H. W. Beekman, chairman; Wm. Evans, vice-chairman; *Social Activities*, Walter Sultan, chairman; W. H. Cohick, vice-chairman; *Publications*, E. G. McCann; *Announcement and Attendance*, S. P. Dukel; *Recreational Activities*, Walter Skinner; *Women's Affairs*, Miss Bertha Dale, chairman; Mrs. Mary L. Jackson, vice-chairman; *Reception*, Chas. Suydam, chairman; Miss C. D. Samuelson, vice-chairman; Miss Mary L. Genis, vice-chairman; *Athletic*, T. B. Copeland; *Editorial*, F. S. Myrtle; *Health Benefit Plan*, J. A. Johnson; *Property*, W. R. Baker; *Policy*, Wm. M. Henderson.

Advertising With Electric Light

By H. E. SANDOVAL

Illumination Engineer, Electric Sales Department

The secretary of a retail association thus aptly describes the difference between a storekeeper and a merchant: "A storekeeper puts goods on his shelves and waits for customers to come in; a Merchant uses Light to draw attention to his goods and to help make satisfactory sales."

Electric signs attract from afar, they focus attention on a location and a commodity. Signs are the magnets that draw the public to the goods for sale. Show windows are the silent salesmen. They must show goods to advantage, tell the story and implant the desire for the public to go inside and buy. This cannot be accomplished in poor light either by day or night.

Once inside the store good lighting allows a quick selection, a quick sale and a satisfied customer. A big department store manager is quoted as saying: "Light sells goods; it gives full advertising value to a merchant's windows, helps overcome the handicap of unfavorable location, saves salesmen's time, reduces returns and sampling and increases turnover. Light is the merchant's cheapest and most effective salesman." And incidentally it would seem that there cannot be too much light in the show window, as the accompanying charts indicate.

In addition to the purely commercial side of good lighting there is community spirit and civic pride to be considered. Did you ever go riding along at night and pass through a town with the stores all dark and only here and there a street light blinking at only nine o'clock? You know what you thought—"Town's pretty dead, not much doing here." And did you ride on a bit further and come to a city with the streets well lighted and the stores attractive with illuminated displays and electric signs flashing? You said, "This city is going ahead, business is good here." And weren't you surprised to learn later that the first dark town was twice the size of the other one, although your impression had been just the opposite?

There is nothing like a clean town by day and a well-lighted town by night to create favorable comment from the stranger within your gates. Merchants who say it's a waste of "juice" to light their stores and windows if there's nobody on the streets to look in them put the cart before the horse. People won't walk down town or drive through the streets if there's nothing to see. Give it a trial, light up and see the results!

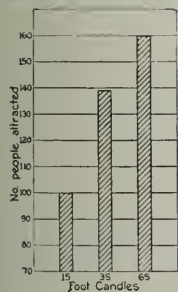


CHART No. 1. 39% more passers-by stopped to look at this window when the intensity was increased from 15 ft. candles to 35 ft. candles, while 60% more stopped when the intensity was raised to 65 ft. candles.

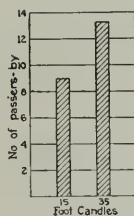
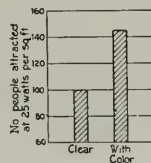


CHART No. 2. With an intensity of 15 ft. candles, 9 % of the total number of passers-by were attracted, whereas with an intensity of 35 ft. candles 13.4% stopped.

CHART No. 3. With a high intensity it was found that by using color caps with no increase in wattage 46% more passers-by stopped to examine the display.



The Financial Side of "Pacific Service"

A. F. HOCKENBEAMER

Vice President and Treasurer

Considerable misapprehension has been created by what were undoubtedly somewhat hastily formulated press dispatches concerning the recent and inherently intricate findings of the Railroad Commission with respect to the value of the electric properties of this Company. In the first place, it was not made entirely clear in these newspaper items that the rate base established by the Commission covered only the Company's *electrical* properties and did not include any of its extensive gas, street railway, irrigation, water and steam heating properties, from which 40% of the Company's gross operating revenues are derived. Nor was it clearly set forth that the rate base established for these electric properties took into account only the average operative investment during the year 1922, and did not include many millions of dollars expended on hydro-electric developments in the Pit River basin and elsewhere, which have since been completed and placed in operation.

In determining the value of the Company's electric properties, the fundamental difference between the Commission and the Company was on a matter of principle and not with respect to the volume of property, what it had cost originally, or what it would cost to duplicate it under present day prices for labor and material. These questions had virtually all been settled by an extremely careful and detailed appraisal of all of the Company's properties made at a large expense and extending over a period of more than two years, and in which representatives of the Commission and of the cities interested in this electric rate proceeding had participated. The Company's contention was that cost and value are not synonymous, and that for rate-making purposes it ought to be allowed a fair rate of return upon the fair present day value of the properties devoted to the service of the public. In translating this principle into values, the Company did not, as it might logically have done, apply "present day" prices of labor and material, but adopted a substantially lower basis of valuation by using the average prices for the five years ending December 31, 1919. Its object in doing this was to establish a value well below the "present day" level, and one that would not be likely to be disturbed through future fluctuations in commodity prices and wages. The Company believes that its position in this respect is not only economically sound, but is fully sustained by recent court decisions, including decisions of the Supreme Court of the United States.

On the other hand, the Commission adopted as the basis for establishing our electric rates what it termed the "reasonable historical cost," and thus arrived at a valuation for rate-making purposes many millions of dollars less than it would cost today to reproduce the properties of the Pacific Gas and Electric Company, or to reproduce them on the still lower basis used by the Company of the five year average of prices to the close of 1919. The Commission pointed out in its decision that in using the "historical cost" basis, it was adhering to the policy which it had adopted from the very beginning, and that under this policy, coupled with the rate of return heretofore allowed, the utilities of the State had lived and prospered. It should be added that the Company sought to impress upon the

Commission that it was not seeking in this proceeding to establish unreasonable electric rates, but felt that it was entitled to have the real value of its properties recognized.

The foregoing is intended merely as a brief statement of the outstanding factors bearing upon the principles of valuation considered in the electric rate proceeding above referred to, and to convey to the investors in this Company's securities the assurance that, while the "rate base" established by the Commission in this proceeding, coupled with the allowed 8% rate of return, presents a situation which the Company is willing to try out in practice, relying upon its increasing business and the economies that will result from its recently completed hydro-electric plants to produce the necessary net revenue for the payment of its fixed charges and the dividend rates established upon its Preferred and Common Stocks, it falls far short of measuring the real value of its properties. *As a matter of fact, the reproduction of all of the Company's tangible properties would at this time involve an estimated expenditure of at least \$240,000,000, on which amount the 1922 net revenues from all sources yielded a return of only a little more than 5%. On this basis, which many courts have held should be taken for rate purposes, the equity per share of Common Stock, after deducting all bonds and Preferred Stocks at par, would amount to approximately \$223 per share.*

As already stated, the Company is willing to make a practical trial of the Commission's decision, merely contenting itself at this time with a formal protest against its findings, but even assuming that all of the properties of the Company have no greater value than the so-called "reasonable historical cost," there is sufficient tangible asset value in these properties to give a sound basis for all of its outstanding securities.

Applying to all of the properties of the Company the minimum base adopted by the Commission in the recent electric rate proceeding, the value of the Company's physical assets as of November 30, 1922, including nothing whatever for going value, and only the Commission's allowance of \$1,619,834 for the Company's immensely valuable water rights, was \$178,305,327.

In other words, if the Commission's method of valuation, which it uses solely for rate making purposes, were to be regarded as the only method of valuation, or as covering value for all purposes, then the value of all the tangible properties of this Company would still be \$178,305,327.

The Commission's general policy with respect to the financing of the public utilities of the State has been sound and conservative and, with but very few exceptions, it has never permitted securities to be sold at less than 80% of their par value. In other words, it has insisted that after the proceeds derived from the sale of securities have been expended, there should be at least 80% of the face value of such securities represented by property values. Applying this yardstick to the Pacific Gas and Electric Company, and dividing the minimum valuation (used solely for rate-making purposes) of \$178,305,327 by the total par value of all bonds, Preferred Stock and Common Stock outstanding at the date of that valuation, the result is that more than 90% of this total outstanding capitalization is represented by tangible property value. The actual value of the Company's tangible properties is substantially in excess of the total par value of all of its outstanding capitalization.

Viewed from any angle, the soundness of the Company's financial structure will be obvious from the foregoing statements. Nor can there be any question that for sale purposes or in condemnation proceedings the courts would allow "present day" values, an adequate value for water rights and a substantial allowance for "going value," elements which are either not present at all in the valuation above used, or are only represented in a very inadequate degree.

Leased properties are not included in any of the valuations herein referred to.

Pacific Service Magazine

PUBLISHED IN THE INTERESTS OF ALL EMPLOYES OF THE
PACIFIC GAS AND ELECTRIC COMPANY

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The Pacific Gas and Electric Company desires to serve its patrons in the best possible manner. Any consumer not satisfied with his service will confer a favor upon the management by taking the matter up with the district office.

VOL. XIV. JANUARY, 1923 No. 8

EDITORIAL

Sales of electric light and power companies' securities to customers and the public at large during the past year will be found in excess of \$175,000,000, while the total for this year is expected to reach \$250,000,000, according to reports and estimates furnished by the customer ownership committee of the National Electric Light Association. It has been estimated, also, that bond issues for 1922 will be found to exceed \$550,000,000, bringing the total amount of securities issued during the past year up to approximately \$725,000,000, with the probability that the total is millions of dollars in excess of this amount.

Truly, this showing is a remarkable one and speaks well not only for the light and power industry as such but for the standing of the light and power companies with the public they serve. It is no news to our readers that the Pacific Gas and Electric Company pioneered the customer ownership idea, and by carrying it out at a time of great stringency in the money market, set an example to be followed by the public utilities of the land. So that, customer ownership has come to be adopted as the almost general policy. It has brought producer and consumer together by ties of self-interest and, starting from that, has paved the way to a higher and better

understanding generally of the public service utility not only in its obligations toward the public it serves but in its faithful and conscientious performance of those obligations.

Public confidence is unquestionably the foundation of public prosperity, and it may be claimed without question that the confidence which is inspired by understanding has had much to do with increasing the prosperity of the public utilities throughout the country.

Taking the two products in which our company deals, namely, electricity and gas, the figures to hand are most encouraging. The most recent report of the U. S. Geological Survey shows that during the eleven months period closing November 30, 1922, the State of California produced 21.8 per cent of the total hydro-electric output of the entire country. The total for the combined states is given at 15,823,409,000 kilowatt hours, of which the record for California stands at 3,458,725,000 kilowatt hours. Incidentally, it may be noted that California leads the next state, namely, New York, which has the output from the Niagara Falls plants to swell its record, by nearly 800,000,000 kilowatt hours.

Needless to tell our readers that electric power is now generally accepted as the great twentieth century developer. It is everywhere and in everything. Consequently, it is of particular interest to know that electricity's century-old rival, gas, is not only holding its own but has at the present moment the brightest future of its entire career. When the official figures for 1922 are made public they are expected to show about a ten per cent increase over the record presented for the year 1921, when gas sales for the country touched the new high figure of 326,000,000,000 cubic feet. Mr. Oscar H. Fogg, secretary-manager of the American Gas Association, is responsible for the statement that the American people today are using three times as much gas as they did twenty years ago.

Mr. Fogg goes on to predict that the new year will bring to the industry the largest and most diversified business in its history. He quotes figures to show that 22 per cent of all the gas consumed in the United States today is used by

shops and industrial establishments in more than 1200 different ways. He declares, also, that companies are being besieged with applications for domestic house-heating equipment and that to meet the unprecedented demand for gas service during the present year the industry generally will have to enlarge its plant and distribution facilities by the expenditure of hundreds of millions of dollars.

"This new capital," said Mr. Fogg, "will be obtained, for the most part, by the sale of securities directly to customers of the companies, a policy which has been productive of great improvement in the relations between the industry and those it serves."

Of particular interest to the electric light and power companies of the country is the announcement of the creation by the General Electric Company of the Charles A. Coffin Foundation, through which a fund of \$400,000 has been set aside, the annual income therefrom to be devoted to encouraging the general study and application of the science of electricity.

This means that an amount of approximately \$20,000 per annum will be available for encouraging and rewarding service in the electrical field by giving recognition to electric light, power and railway companies for improvements in service to the public, awarding prizes to employees, fellowships to graduate students and providing funds for research work in technical schools and colleges.

The creation of this fund for the purposes indicated follows the retirement from office of Mr. Charles A. Coffin, business man and financier, to whom the electrical industry of the United States owes much of its rapid and sound development. Mr. Coffin organized the General Electric Company in 1882, served as its president for a number of years and became, in due course, chairman of the board of directors. He retired from active duty May last. He is now 78 years of age.

The foundation is to be controlled and administered by a committee appointed by the board of directors. It proposes to distribute the income as follows:

First — Eleven thousand dollars in prizes for the most signal contributions by employees of the General Electric Company toward the increase of its efficiency or progress in the electrical art. Particularly, the prizes are to further encourage suggestions from workmen. Foremen's prizes are to be awarded for the best department, taking into account its appearance, efficiency of operation and conditions which add to the better conduct of the work and welfare of the employee.

Second—A gold medal, to be known as the Charles A. Coffin Medal, is to be awarded annually to the public utility operating company within the United States which, during the year, has made the greatest contribution towards increasing the advantages of the use of electric light and power for the convenience and well-being of the public and the benefit of the industry. The company awarded the medal will also receive one thousand dollars for its employees' benefit or a similar fund.

Third — A similar medal will be awarded to the electric railway company in the United States which, during the year, has made the greatest contribution towards increasing the advantages of electric transportation for the convenience and well-being of the public as well as the industry. The company awarded the medal will also receive \$1000 for its employees' benefit or similar fund.

Fourth — Five thousand dollars is to be awarded annually for fellowships to graduates of American colleges and technical schools who, by the character of their work, and on the recommendation of the faculty of the institution where they have studied, could with advantage continue their research work either here or abroad. Or, some portion of the fund may be used to further the research work at any of the colleges or technical schools in the United States. The fields in which the awards are to be made are electricity, physics and physical chemistry.

This announcement should encourage the spirit of emulation among employees of all electric companies of the country as well as students of the technical colleges.

It's the Little Things That Count

By J. CHARLES JORDAN

Manager Advertising Division, Publicity Department

You are not properly dressed to meet the public unless your face wears a smile.

We find a general demand on the part of the public for that prompt and personal service that comes with a smile. People are not satisfied today with the easy going, haphazard methods of a few years ago. More money is being earned and spent. We are living in an age of speed and have those things that go to make life better and better.

It is essential that the patrons of an institution like "Pacific Service" should entertain a kindly feeling toward the company and its employees. One of the most valuable assets that this company can have is public good will. Every man and woman in the employ can be a maker or a breaker of this good will. After all, it is the personnel of the company that makes for its success or failure.

Like any other kind of endeavor, our efforts toward better public relations must be persistent, sustained, and sincere in order to work effectively. A wise manager will keep his men in the field developing and cementing that good will with the people. He cannot afford to lose the valuable contact which has taken years to establish. We often hear of some one starting an agitation against a utility, but we seldom hear of any one starting a boost campaign for it. In any successful enterprise, good will must be continuous.

The thought comes to mind, we are doing those things that should make better public relations. Rates are low and service is regulated, safeguarding the public's interest. Rules are enacted giving better service and consideration than heretofore thought of. Policies are established of a more liberal nature, and, all in all, we believe consumers are well cared for. But there is one phase of our contact with the public that no rule or legislation will control, and that is the personal contact of the individual

employee. Too much stress can not be laid upon that contact, whether it be by conversation, face to face, through 'phone or written word.

The prudent employer in selecting his employees endeavors to select those who will do certain tasks with the least amount of friction. A friction caused in public contact often causes an irritation that develops into a very severe sore. This may be brought about by a snappy 'phone operator, a counterman who unnecessarily argues with a customer, a collector who writes a stinging "please remit" letter, a service man who fails to clean up a sidewalk after he has covered it with dirt, a lineman who calls on a "no light" complaint and because the consumer does not have 15 cents in change to pay for a fuse leaves him in darkness.

These offenses may seem trivial to the man on the job, but they indicate a type of complaint which gives consumers an opportunity to say something uncomplimentary about the employee, and the employee is the company.

In a utility such as ours, service is fundamentally human. Every employee is a factor in the making of better public relations and his or her contact with the public will make for its success or failure. The company is known through the employee. So, the company looks to its men and women to be kind, courteous, keen and alert. Civility is the virtue that oils the wheels of life and the absence of which causes the whole machinery to rumble and jar. Let us remember that if we enjoy civility in others they enjoy meeting it in us and pass it along.

In every phase of our business there is that predominating feature, Service. It is by all means the most important. Any utility operation that is to succeed must first and last be interwoven and inseparably linked with prompt and personal service, the service that comes with a smile.

Tidings From Territorial Divisions

East Bay Division

Figures showing the phenomenal growth of the East Bay district, have been compiled for the first eleven months of 1922. During this period building permits in Oakland alone amounted to over \$22,000,000, an increase of 60 per cent over 1921 and of 480 per cent over the same period in 1916. The other East Bay cities show a proportionate growth, with all indications of a continuation in 1923. All this means that "Pacific Service" is going to grow at a like rate.

From an industrial standpoint, figures just released from the state employment agency show that Oakland is the fastest growing city in the state. The number of people employed increased 36 per cent; Los Angeles increased 13 7-10 per cent and San Francisco 4 9-10 per cent, showing Oakland's growth over twice that of the second city, Los Angeles, and 15 per cent larger than that of the state at large, this figure being 21 per cent.

New industries continue to come to Oakland and since December 1st, the following have started producing or are erecting plants:

Art Rattan Works, Inc., which has been operating in San Francisco for a number of years with a branch in Fresno, is erecting a factory on the east side of 24th Avenue between East 12th and 14th streets, which will have a floor space of 21,000 square feet. Their product, covered by the term "wicker furniture," includes rattan, braided, rush and reed furniture for the home and office. They plan to begin operating February 15.

Cooley Hardwood Manufacturing Company has purchased factory site of 85,000 square feet on the north-east corner of 19th Avenue and Den-

nison Street, and will actively engage in manufacturing hardwood flooring and other hardwood products. Their factory, which is now in the course of construction, consists of a building 30x160 feet, with an engine room 16x26 and dry kiln No. 1, which is 18x100, giving an aggregate floor space of over 7,000 square feet. Dry kiln No. 2 of same capacity will be erected after the first of the year.

This concern specializes in an unusually high-grade white oak, which is imported from the forests of Louisiana and Mississippi. The entire product is shipped to Oakland by water via the Panama Canal, and, in view of the fact that the present capacity of the plant is over 2,000,000 feet a year these shipments will be an important increase to the tonnage passing over Oakland's docks, and will aid, materially, in making Oakland more important as a shipping point.

McClure Chemical Laboratories has leased ground with buildings at 4535 Horton Street, Emeryville. The property comprises about 30,000 square feet and includes buildings for a strictly up-to-date chemical plant. Mr. T. O. McClure, president of the company, is an experienced chemist of high standing and will put out a line of industrial chemicals, consisting of belt dressings, cutting compounds used in cutting metals, and soaps of various kinds, together with agricultural chemical compounds consisting of tree sprays, stock dip and disinfectants.

Universal Tractor Company, Inc., has rented the factory formerly owned by the Baker-Hansen Company at 744 23rd Avenue. This concern is incorporated under the laws of the State of California. Its purpose is to manufacture a light tractor—approximately 2,500

pounds—with weight on traction wheels, having all implements in front of the operator and one that can be used as a two-way or one-way tractor as desired. This tractor is adaptable to hillside work, turning all the soil down hill.

Fornercrete Aggregate Company has completed its new plant on Clement Street near High Street, Oakland. They have an up-to-date crushing, grinding and pulverizing plant, and are in a position to crush, grind and pulverize all kinds of minerals. They announce that they have orders for twenty carloads from one paint company, and they expect to have one hundred carloads a year for grinding alone. This concern, also, manufactures all kinds of concrete garden furniture, including fountains, bird baths, decorative figures, etc. The Southern Pacific Company has put a spur track on the property in order to more adequately handle the output.

The Bank of Alameda is about to move into its new quarters, which have been remodeled and added to at an approximated cost of \$60,000. New vaults have been installed, the lobby greatly enlarged and new floors and decorations added.

A few weeks ago the Citizens' National Bank announced the purchase of additional property on Park street and, also, on Santa Clara avenue, and plans are going forward to enlarge the bank's capacity. Work will begin when warmer weather sets in.

The Commercial National Bank has taken a twenty-year lease on the property at the corner of Park street and Central avenue and announces that increased business of the institution has justified the expenditure of between sixty and seventy-five thousand dollars in fitting up new headquarters. The work is being done at this time and is to be finished within three months.

A survey of the industrial development of East Bay for the past year has

just been made by the Chamber of Commerce, showing that fifty-six manufacturing concerns have located here during the first ten months of this year. They cover a wide range of products, including automobiles, storage batteries, clocks, toys, radio appliances, textile products, chemicals, foundry products, structural steel, lubricating oils and electrical appliances of various kinds. Among these new local industries are several of national importance constructing or already operating plants, such as the General Electric Company, Fisher Body Corporation, United States Light and Heat Corporation, Westinghouse Electric & Manufacturing Co., Durant Motors Corporation, Star Motors Corporation, Cleveland Metal Products Company, American Clock Corporation and the Chamberlain Metal Weather Strip Company. These new industries, when all are completed and operating, will represent an invested capital of approximately \$6,000,000 and will give employment to about 2500 people, with an estimated payroll of \$5,000,000 a year.

Another measure of Oakland's growth during the year is given in recent post-office statistics from Washington. Comparing the postal receipts for the month of November 1922 with the same month of last year, Oakland with a gain of 21 per cent ranks second in the list of 50 cities of equal class, in the gains made. Springfield, Ohio, a large publishing and mailing center, ranks first.

E. B. D.

Colgate Division

F. A. Onstott, a Gridley farmer, exhibits a peculiar specimen of orange-lemon grown on a tree on his place here. The tree is an orange tree into which lemon wood has been budded and the tree is partly a lemon tree. The fruit in question is part orange and part lemon, with the typical skin of each fruit over each part. The divisions are by segments, and there are two patches of each kind of fruit.

One of the peculiar fruits was cut and eaten and the part covered by the

orange skin was sweet and orange-like, and the part under the lemon skin was sour and typical of a true lemon. It is understood that the fruit is to be sent to Luther Burbank for his inspection and comment.

Another novelty of the kind is to be seen at the rooms of the Sutter County Chamber of Commerce in Yuba City. It was grown in the orchard of Luther Ashley in Yuba City and from a Washington navel orange tree grafted to a lemon. From a twig issuing from the lower part of the tree there has been produced a freak in the shape of a pumpkin but with the skin and other characteristics of an orange, measuring 16 and 3-16 inches in circumference. The fruit has a prominent navel and is otherwise shaped like an orange.

Approximately 130 acres of land in the Yuba river bottoms on the south side, which some time ago were cleared of cottonwood and willow trees, will be planted this season by Fred Raschen to peach trees.

Thirteen thousand trees have been ordered for the planting and Horticultural Commissioner G. W. Harney has arranged for their inspection. A year ago the land on which the trees will be planted was a veritable forest. The trees were cut down and the wood made into charcoal which Raschen is finding little difficulty in marketing because of its fine qualities.

There will be some extensive planting all along the Yuba river this winter and spring.

Of the 8,000 tons of raisins delivered at the Yuba City plant of the Sun Maid Raisin Association, 6,400 tons have been shipped out to market, nearly all going via the Panama Canal to England and Holland. This market was opened to the California product by reason of the war in Turkey, which cut off the Smyrna supply.

The output included 1600 tons of sulphur bleached and 550 tons of sun dried, the remainder being soda dipped.

From 75 to 100 women have been employed at the new plant for several

months, sorting and packing the raisins in cartons.

L. O. Weaver, who came up from Fresno to superintend operations here when the new plant was opened, has completed his work and has returned to his home at Fresno. M. D.

North Bay Division

The Electric Construction Department have recently completed the construction of a 60 KV line from Sebastopol to Mirabel Park, on the Russian River. This line will supply a new sub-station of the California Telephone and Light Company and will enable that company to meet the rapidly growing demand for light and power throughout the Russian River district.

The Petaluma-Santa Rosa and Sebastopol Railroad Company has made application for an additional sub-station of 300 KW capacity at Santa Rosa to take care of the heavy railroad load at that point. The business of this company has enjoyed a steady increase, and is one of the few roads that was able to operate on a good dividend paying basis during the post-war period. This road serves the rich agricultural communities of Petaluma, Sebastopol and Santa Rosa and operates a connecting line of steamers between its Petaluma terminus and San Francisco.

Mr. Young, manager of the Belding Bros. Company has received word from the eastern office of the company to proceed to electrify the plant at Petaluma and to relegate the old Corliss engine, which has done duty for over thirty years, to the scrap heap. This company manufactures a very high quality of silk thread. The new installation will approximate 100 H. P.

The new gas-holder at Vallejo, capacity 500,000 cubic feet, has been completed, tested and will soon be put into operation. The completion of this unit makes the Vallejo plant one of the best equipped gas works of the "Pacific Service" system.

Some idea of the improvement of conditions of "Pacific Service" in the North Bay Division can be had by a study of the following recent authorizations for additions and betterments:

Vallejo gas-holder, work completed	\$ 81,205.00
San Rafael new gas-holder, work started	98,600.00
San Rafael new generator and accessories	43,091.00
Mill Valley and Sausalito gas main extension	192,235.00
San Rafael-Petaluma 8-inch transmission line	215,750.00
Napa State Hospital high pressure line	6,795.00
New 125 H. P. compressor at San Rafael	15,295.00
Total	\$652,899.00

Gas was turned into the Sausalito main on December 12th last, and "Pacific Service" made the fact known by opening a week of domestic science lectures in which the local Sausalito appliance dealers participated by arranging a very excellent display of gas appliances in the lecture rooms. Mrs. Withers of San Francisco Division's new business department, conducted the lectures. Mr. H. M. Crawford, manager of gas sales; Mr. F. W. Naylor, gas heating engineer, Mr. B. F. Pederson of the American Stove Company and others gave talks on the use of gas in the home for cooking and heating. At the conclusion of the demonstration a drawing was held and Mrs. T. F. Silva presented with a beautiful gas range, her own selection of all the ranges on exhibit.

The following letter received from Mill Valley indicates the appreciation of Mrs. Ing who was presented with a gas range at the Mill Valley demonstration:

The Pacific Gas and Electric Co.,
Dear Sirs:

Mrs. Ellen M. Ing of Magee avenue wishes to acknowledge the receipt of the wonderful Vulcan Smoothtop Range, which she was so fortunate in winning from the Gas Company, and to express

her pleasure in its fine cooking service, now it has been adjusted. The gas is a happy acquisition for Mill Valley.

Mrs. Ellen M. Ing,
Mill Valley, Calif.

December 29, 1922.

H. G. R.

San Joaquin Division

The year 1922 established a record in bank clearings in Modesto, according to a report for the year issued by the Modesto Clearing House Association. Total clearings ran close to the one hundred million dollar mark. Debits and net clearings for the twelve months ending Saturday, December 30th, amounted to \$96,621,873, the biggest year in the history of the association. This shows an increase of approximately \$3,800,000 over 1921.

As bank clearings serve as a barometer, Modesto's 1922 record is one that will reflect business conditions here during the past year as highly encouraging.

Plans are out for the construction of a pre-cooling and cold storage plant, costing \$260,000, to be located on the Stockton water front. Construction will be started within sixty days and it is expected to have the plant in operation before summer. It will be designed principally for the pre-cooling of fruit and vegetables.

Officials of the Nestle Food Company have completed an inspection of the Salida plant and announce that they are prepared to make extensive alterations and improvements for the purpose of converting this plant into one of the most completely equipped on the Pacific Coast for the manufacture of all milk products.

At the present time, the milk received at this plant has been manufactured into cheese. After the improvements are made, it will be equipped to manufacture sweetened condensed milk, evaporated milk, powdered milk, cheese, casein and sugar of milk, besides being in a position to ship sweet cream and pasteurized whole milk to the distributors of the various cities. This will insure

the dairymen of this locality a steady and profitable market for their milk.

At the present time the Western Pacific has under way improvements in its Stockton warehouse at a cost of, approximately, \$35,000. A new bulkhead, fronting on the waterfront and extending the full length of the building, is being constructed. With the completion of this work, a concrete floor will be laid and the storage capacity increased.

Oakdale experienced the biggest building year in its history during the twelve months just closed. Building permits totalled nearly a quarter of a million dollars. Twenty-two new residences were completed during the year, at a combined cost of more than \$60,000. The biggest single item of construction was the new high school building, the cost of which is \$85,000.

A contract has been let to the General Electric Sign Company of Stockton for an electric arch across F street in the City of Oakdale, at the intersection of the Yosemite and new San Francisco highways. The sign will cost approximately \$750 installed, and it is planned to beautify the arch in some manner, possibly by the use of vines or climbing roses.

The Oakdale Chamber of Commerce also has plans for the installations of signs at the different boundary lines of the Oakdale Irrigation District, in order that tourists may know when they get within the confines of the district.

A new fire-house to replace one now in use in the heart of the business district, where traffic congestion now makes its location hazardous, is planned by the City Council of Stockton.

Building permits issued in Stockton during 1922 show a forty per cent increase over the previous year, while their estimated value represented a gain of 56 per cent. Construction during the year was for all types of buildings and not confined to any one class.

The Fish Protective Association, including the counties of Stanislaus and Tuolumne, was organized in Modesto recently. The organization will start with a charter membership of approximately 1000 members.

Now that the beautiful Sierra section of Tuolumne County, with its unexcelled fishing possibilities, is connected with the valley cities by a fine State highway, the greater portion of it paved with concrete, our valley friends are taking a keen interest in the fish stocking and fish protection of this great playground. A fish hatchery is badly needed in Tuolumne County, and the establishment of a large up-to-date hatchery is one of the first problems confronting the Association. There are a number of fine locations for a fish hatchery in the neighborhood of Strawberry and Pine Crest, and it is planned to ask the new legislature to make provision for the opening of one in that locality.

Postal receipts in the city of Stockton recorded a steady increase throughout the year and the total for the year showed a considerable gain over the figures for 1921.

Bank clearings in Stockton likewise reflected a most satisfactory increase in the business of the community.

The total value of the assets of the Oakdale Irrigation District is approximately \$3,000,000, and land and real estate within the district more than \$4,000,000, according to data prepared by the Oakdale Irrigation District Board for submission to the federal power commission in connection with the application for the Melones storage permit. Active efforts are being made by the Oakdale Irrigation District to clear the way for the Melones bond question to be brought before the taxpayers.

In December, 1922, electric service for 140 heaters, totalling 349 KW, was established for the U. S. Government Vocational Training School on Rough and Ready Island, four miles west of Stockton. This load consists of eighty-seven 2 KW heaters, twenty 2½ KW heaters, five 3 KW heaters, seventeen 3½ KW

heaters, one 4 1-5 KW heaters, and ten 5 KW heaters.

This heating load is distributed to six buildings and was selected in preference to steam heat. We believe this to be one of the largest heating loads in one unit in the interior of the State. Wesix open coil air heaters were used throughout, being supplied by the Wesley Hicks Company of San Francisco.

Plans for the construction of an ice plant to cost more than \$30,000 to supply the wholesale and retail trade in Modesto were recently completed by J. S. West, grain dealer of Modesto, who is financing the enterprise. Contracts for the construction and equipment of the plant have been signed and call for completion by March 15th. The plant will probably be located within the limits of the City of Modesto.

Bonds in the amount of \$107,850.00 were recently voted in Tracy to complete and extend the water works system, to curb, drain, and pave street intersections and to construct a new sewage disposal works and overflow pipe to the barge canal. All of these improvements will be very welcome to the citizens of Tracy, as they all cover betterments which have been much needed.

Immediate development of the Griffin tract of 1000 acres near Oakdale is suggested as a result of the promise of the Oakdale Irrigation District board to build a lateral to water the big tract. This tract will be subdivided into small farms, and is to be opened to settlement within the near future. M. L. R.

Fresno Division

The largest raisin crop the valley has ever known has been successfully gathered since September 1st. The Sun Maid Raisin Growers have received 185 thousand tons, which is over 70 tons more than was received during the same period for last year.

Over 16 million dollars advance payment on raisin crops have been distrib-

uted to growers during the last three months. These reports auger well for Fresno and vicinity.

Marked progress has been made toward completion of Fresno's three modern downtown buildings, namely, the Patterson Building, California Hotel and the Sparkman Building, all of which will contribute extensively in changing the Fresno sky line. The California Hotel, commonly called Fresno's new million dollar hotel, will cost, for building alone, over \$700,000, and, with equipment, will bring up the total cost to over \$1,000,000. It will be a modern eight-story fire-proof hostelry, and will add greatly to the comfort of the traveling people.

Fresno's phenomenal growth during the year of 1922 in new buildings has necessitated a greater improvement in her city streets. Five hundred and fifty thousand dollars, more than half the city taxes collected for last year, have been spent in street improvements, of which asphalt paving has been the chief item.

"Pacific Service" has valiantly carried on during the last year. We have laid over 29 miles of main, have installed 2,332 meters and have sold over 517 million feet of gas.

An interesting comparison between the year of 1908 and 1922 is shown by the following table compiled by Mr. Vincent's department. It graphically depicts the growth of the gas industry in Fresno:

	1908	1920	1922
Maximum rate	\$1.50	\$1.30	\$1.14
Minimum rate	1.00	.80	.72
Avg. number employees	25	219	148
Avg. monthly payroll	\$1,866	\$18,020	\$21,330
		E. W. K.	

San Francisco Division

The month of December as a rule is quiet, as will be seen from our record of new business. An exception, how-

ever, was noted in 1922, the most important installations being as follows:

At 837 Geary street, Mr. Johnson, who is a builder of apartment houses, erected a thirty-seven apartment building, and as in the case of the preceding building erected by him gave his business to "Pacific Service."

828 Jones street, Mr. Stich, twenty apartments. This building is composed of two and three-room apartments and was erected for the best class of tenants.

2001 Van Ness avenue. Walter Murphy Sales Company increased its shop facilities, installing some 22 H. P. for new machinery, which proves that this company is building to meet its increased sales.

1914 Washington street. Mr. Keenan erected four sets of steam heated flats, four rooms in each flat, sixteen rooms in each set of flats, a total of sixty-four rooms in all. The unique feature about this building is that it has a separate entrance for each tenant.

The Miller Storage and Transfer Company, which has erected a six-story concrete building, awarded its contract to this Company, which will amount to some 25 H. P. for illumination purposes. One of the features in connection with this building is that Mr. Miller erected on the second floor an apartment building which he will occupy and which is entirely electric for heating, cooking and lighting, the connected load being some 20 KW.

The Tevis property at the southeast corner of Jackson and Taylor, a fifty-foot lot, will be improved by building twenty apartment flats of modern design. The property was purchased by Mr. Bauer of the Wigwam Theater. Every up-to-date convenience will be installed. This building will be supplied by "Pacific Service."

Not to be outdone, the Gas Industrial Department reports some very fine installations, the following being the largest of those installed:

The Palace of Fine Arts—A new heating system was installed to heat the spa-

cious auditorium and recital room in this building.

W. B. Smith—80 San Fernando Way. This is one of the newest and most up-to-date homes in this beautiful tract and there has been installed a complete heating system, heating the entire home.

J. S. Blum—Polk and California, candy store. Our heating department has just completed an installation to take care of this entire store. F. T.

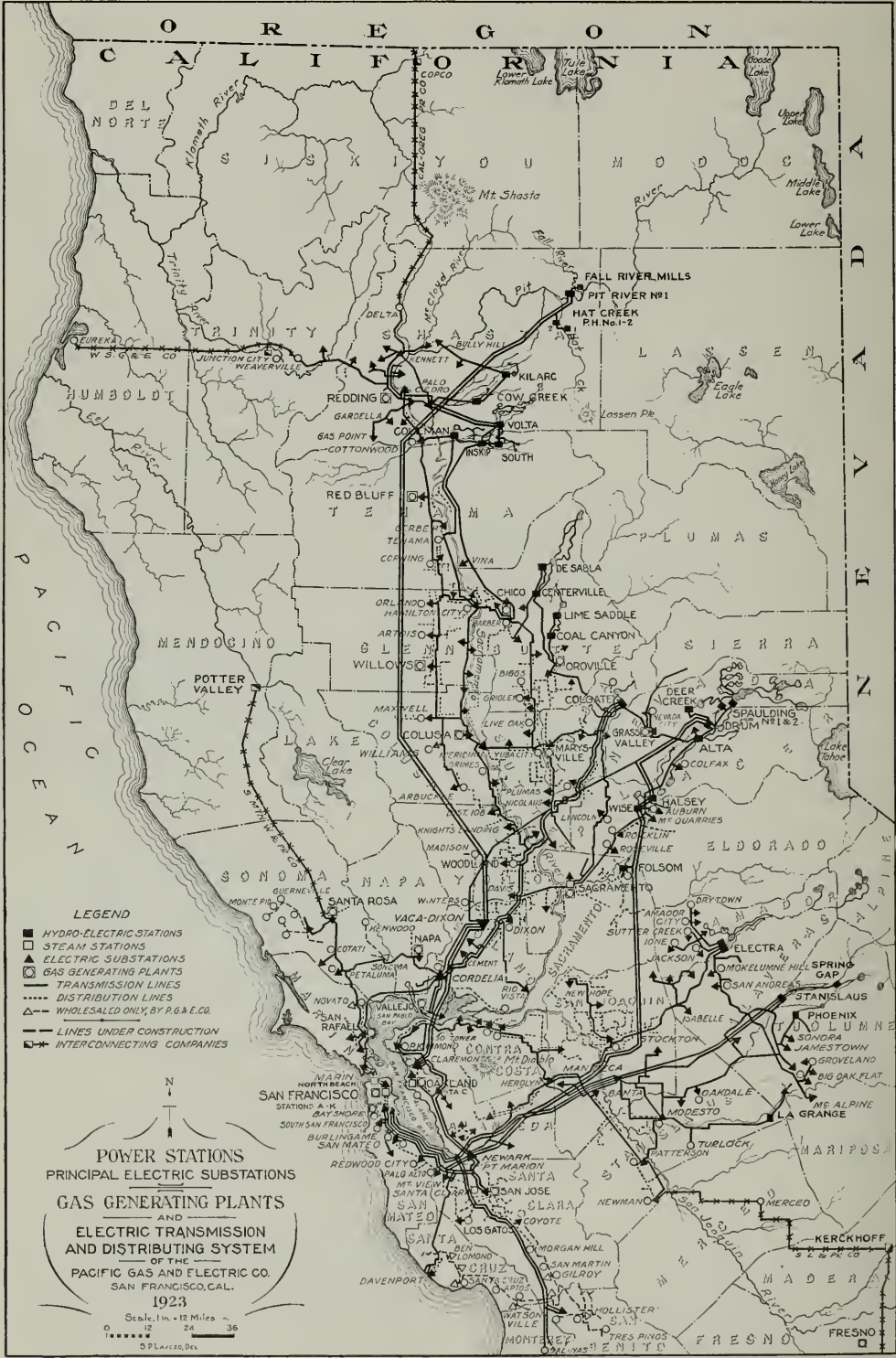
The Gas Distribution Department is contemplating a very busy year. Our budget for proposed main line extensions and betterments is approximately \$522,263. The largest individual unit to be installed is the main from the new gas holder at Army and De Haro. This line consists of 2840 feet of 36-inch pipe, 5409 feet 24-inch pipe, 8661 feet of 20-inch pipe and 10,267 feet 12-inch pipe.

At the present writing we have an estimate subject to approval calling for 4192 feet of 12-inch C. I. main to be installed in Folsom street, between the Embarcadero and Third. E. G. C.

The gas sent out from the San Francisco plants during 1922 showed an increase of 9.5 per cent, or over six hundred million cubic feet. This increase in one year exceeds the total increase during the previous three years, 1918-1921, by nearly sixty-four million cubic feet.

The erection of steel for the liquid purifiers began at Potrero plant the first part of January, and should be complete by the middle of March.

The foundations are completed, and waiting for steel for the erection of six new scrubbers at the Potrero plant. These scrubbers will add 10,000,000 cubic feet to the daily scrubbing capacity of the plant. J. M. D.



Pacific Gas and Electric Company Furnishes

"PACIFIC SERVICE"

TO OVER 640,000 CONSUMERS OF

GAS ♦ ELECTRICITY ♦ WATER ♦ STREET RAILWAY

1,715,959 Total Population Served in Thirty-six of California's Counties

CITIES AND TOWNS SERVED BY COMPANY

DIRECTLY			INDIRECTLY		TOTAL	
	No.	POPULATION	No.	POPULATION	No.	POPULATION
Electricity.....	170	1,117,541	61	156,411	231	1,273,952
Gas.....	61	1,134,687	2	8,600	63	1,143,287
Water (Domestic).....	18	61,719	8	15,483	26	77,207
Railway.....	1	65,908			1	65,908

Place	Population	Place	Population	Place	Population	Place	Population
¹ Alameda.....	28,806	⁶ El Verano.....	400	Meridian.....	200	²⁵ San Leandro... ..	5,703
¹ Albany.....	2,462	⁶ Emeryville.....	2,390	¹ Millbrae.....	300	²⁵ San Lorenzo... ..	500
Alvarado.....	1,000	Escalon.....	600	Mills.....	400	²⁵ San Martin... ..	250
Alviso.....	517	Esparto.....	200	² Mill Valley.....	2,554	²⁵ San Mateo.....	5,979
⁶ Amador City... ..	377	² Fairfax.....	250	Milpitas.....	300	²⁵ San Pablo.....	500
Anderson.....	750	Fairfield.....	1,008	Mission San		²⁵ San Quentin... ..	3,000
Angel Island.....	500	Fair Oaks.....	300	Jose.....	500	²⁵ San Rafael.....	5,512
Antioch.....	1,936	Fall River Mills	300	Merced.....	9,241	²⁵ San Clara.....	5,220
⁶ Aptos.....	300	Farmington.....	300	Mokelumne Hill.	900	²⁵ Santa Cruz.....	10,917
Arbuckle.....	900	⁶ Felton.....	300	⁶ Monterey.....	5,479	²⁵ Santa Rosa.....	8,758
² Atherton.....	500	Folsom.....	2,000	⁶ Morgan Hill... ..	646	Saratoga.....	500
² Auburn.....	2,289	⁶ Forestville.....	250	Mountain View..	1,888	²⁵ Sausalito.....	2,790
¹ Barber.....	500	Fresno.....	45,086	Mt. Eden.....	200	²⁵ Sebastopol.....	1,193
¹ Belmont.....	375	⁶ Gilroy.....	2,862	¹ Napa.....	6,737	²⁵ Shasta.....	200
Belvedere.....	616	⁶ Glen Ellen.....	1,000	²⁵ Nevada City... ..	1,782	²⁵ Shellville.....	200
Benicia.....	2,693	⁶ Gonzales.....	500	Newark.....	500	Sheridan.....	250
⁶ Ben Lomond... ..	400	² Grass Valley... ..	4,006	¹ Newcastle.....	750	Smartsville.....	300
¹ Berkeley.....	56,036	⁶ Gridley.....	1,636	Newman.....	1,251	⁶ Soledad.....	400
Biggs.....	683	Grimes.....	500	¹ Niles.....	1,000	⁶ Soquel.....	400
Bolinas.....	200	Groveland.....	500	⁶ Novato.....	400	⁶ Sonoma.....	801
Brentwood.....	400	⁶ Guerneville.....	800	Oakdale.....	1,745	⁶ Sonoma.....	1,684
² Broderick.....	700	² Hamilton City... ..	250	² Oakland.....	216,261	²⁵ South San	
¹ Burlingame... ..	4,107	Hammononton... ..	500	Oakley.....	200	Francisco.....	4,411
Byron.....	350	Hayward.....	3,487	⁶ Occidental.....	600	Standard.....	500
² Campbell.....	600	⁶ Hercules.....	373	Orland.....	1,582	²⁵ Stanford Uni-	
⁶ Capitola.....	300	² Hillsborough... ..	931	⁶ Oroville.....	3,340	versity.....	2,700
⁶ Carmel.....	638	⁶ Hollister.....	2,781	⁶ Pacheco.....	300	⁶ Stockton.....	40,296
Cement.....	1,000	Honcut.....	500	⁶ Pacific Grove... ..	2,974	Suisun.....	769
Centerville.....	1,000	Hughson.....	250	² Palo Alto.....	5,900	Sunol.....	350
Ceres.....	637	⁶ Imone.....	1,000	Paradise.....	500	Sunnyvale.....	1,675
² Chico.....	9,339	Irvington.....	1,000	⁶ Patterson.....	694	Sutter City.....	250
⁶ Colfax.....	573	⁶ Jackson.....	1,601	⁶ Penn Grove.....	200	⁶ Sutter Creek... ..	920
College City.....	250	⁶ Jamestown.....	750	⁶ Penryn.....	250	Tehama City... ..	196
Collinsville.....	200	Kennett.....	464	Perkins.....	300	Tiburon.....	400
² Colma.....	1,500	² Kentfield.....	500	⁶ Petaluma.....	6,226	Tracy.....	2,450
⁶ Columbia.....	200	Kenwood.....	300	⁶ Piedmont.....	4,282	²⁵ Tres Pinos.....	1,300
² Colusa.....	1,846	Kewick.....	200	⁶ Pike City.....	200	⁶ Udumne.....	1,500
Concord.....	912	⁶ King City.....	1,048	⁶ Pinole.....	967	Turlock.....	3,394
Cordelia.....	300	⁶ Knights Ferry... ..	200	⁶ Pittsburg.....	4,715	⁶ Vacaville.....	1,254
Corning.....	1,449	⁶ Knights Land-		⁶ Pleasanton.....	991	² Vallejo.....	21,107
² Corte Madera... ..	607	ing.....	400	Port Costa.....	900	Vina.....	300
² Cotati.....	200	⁶ L A Grange.....	200	⁶ Princeton.....	300	⁶ Vineburg.....	200
Cottonwood.....	500	⁶ Larksbur.....	612	² Red Bluff.....	3,104	Walnut Creek... ..	538
Coyote.....	200	Lathrop.....	600	² Redding.....	2,962	Warm Springs... ..	200
Crockett.....	1,500	Lewiston.....	200	² Redwood City... ..	4,020	Waterford.....	250
Crow's Landing..	300	⁶ Lincoln.....	1,325	² Richmond.....	16,843	⁶ Watsonville... ..	5,013
¹ Daly City.....	3,779	Live Oak.....	300	⁶ Rio Vista.....	1,104	Wheatland.....	435
Danville.....	400	Livermore.....	1,916	⁶ Ripon.....	500	Williams.....	650
Davenport.....	300	⁶ Lomita Park... ..	600	⁶ Riverbank.....	200	⁶ Willows.....	2,190
² Davis.....	939	⁶ Loomis.....	500	⁶ Rocklin.....	643	⁶ Winters.....	903
Decoto.....	300	⁶ Los Altos.....	500	⁶ Rodeo.....	300	² Woodland.....	4,147
⁶ Del Monte.....	300	² Los Gatos.....	2,317	⁶ Roseville.....	4,477	Woodside.....	300
Denair.....	200	⁶ Los Molinos... ..	200	¹ Ross.....	727	Yolo.....	350
⁶ Dixon.....	926	⁶ Madison.....	300	⁶ Sacramento... ..	65,908	² Yuba City.....	1,708
⁶ Drytown.....	200	⁶ Manteca.....	1,286	⁶ Salinas.....	4,308		
⁶ Duncan's Mills..	200	⁶ Mare Island... ..	600	⁶ San Andreas... ..	1,183	Total Cities ¹	
Durham.....	250	Martinez.....	3,858	² San Anselmo... ..	2,475	and Towns.....	1,347,844
⁶ Dutch Flat.....	750	⁶ Marysville.....	5,461	² San Bruno.....	1,562	Add Surburban	
⁶ Eldridge.....	500	⁶ Maxwell.....	500	² San Francisco... ..	506,676	Population.....	368,115
² El Cerrito.....	1,505	⁶ Mayfield.....	1,127	² San Jose.....	39,642	Total Popula-	
Elmira.....	350	² Menlo Park.....	900	² San Juan.....	350	tion Served.....	1,715,959

Unmarked—Electricity only.

¹—Gas only.

²—Gas and Electricity.

³—Gas, Electricity and Water.

⁴—Gas, Elect. and St. Railways.

⁵—Electricity and Water.

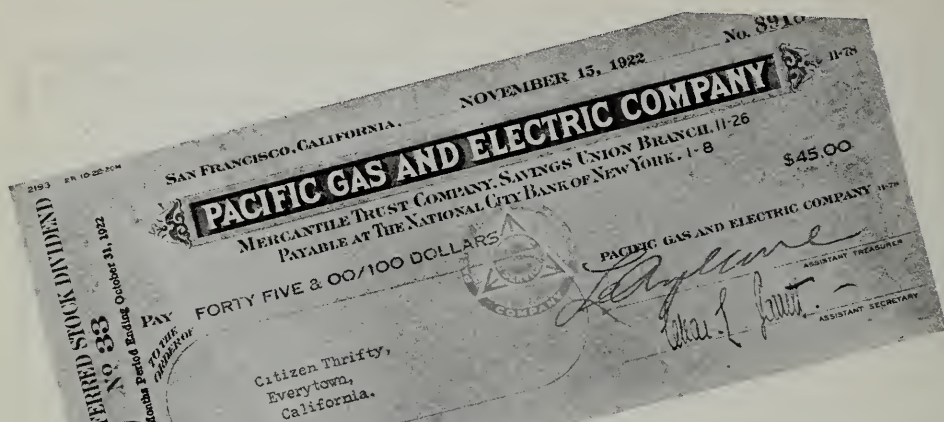
⁶—Electricity supplied through other companies.

⁷—Gas supplied through other companies.

⁸—Water supplied through other companies.

"PACIFIC SERVICE FACTS"

"Pacific Service" serves 41,548 additional consumers than the number served as of Jan. 1, 1922, this is a gain made in eleven months. There are only nine cities in this state having a population greater than this figure according to the U. S. Census.



Payable to- **YOU?**

Twenty thousand investors in Pacific Gas and Electric Company First Preferred Stock regularly receive one of these checks on the fifteenth day of every third month. Are you one of them?

The investment of a portion of your income in this safe and profitable security will enable you to participate in the earnings of one of the largest and strongest companies of its kind in the country, a utility upon which California depends largely for its industrial and commercial progress.

Monthly payments may be arranged if desired.



A safe and useful investment

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WINTER VIEW OF DRUM POWER HOUSE IN THE BEAR RIVER GORGE

Vol
14

FEBRUARY 1923

No
2

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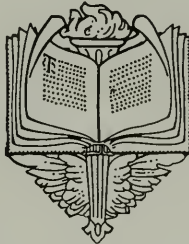
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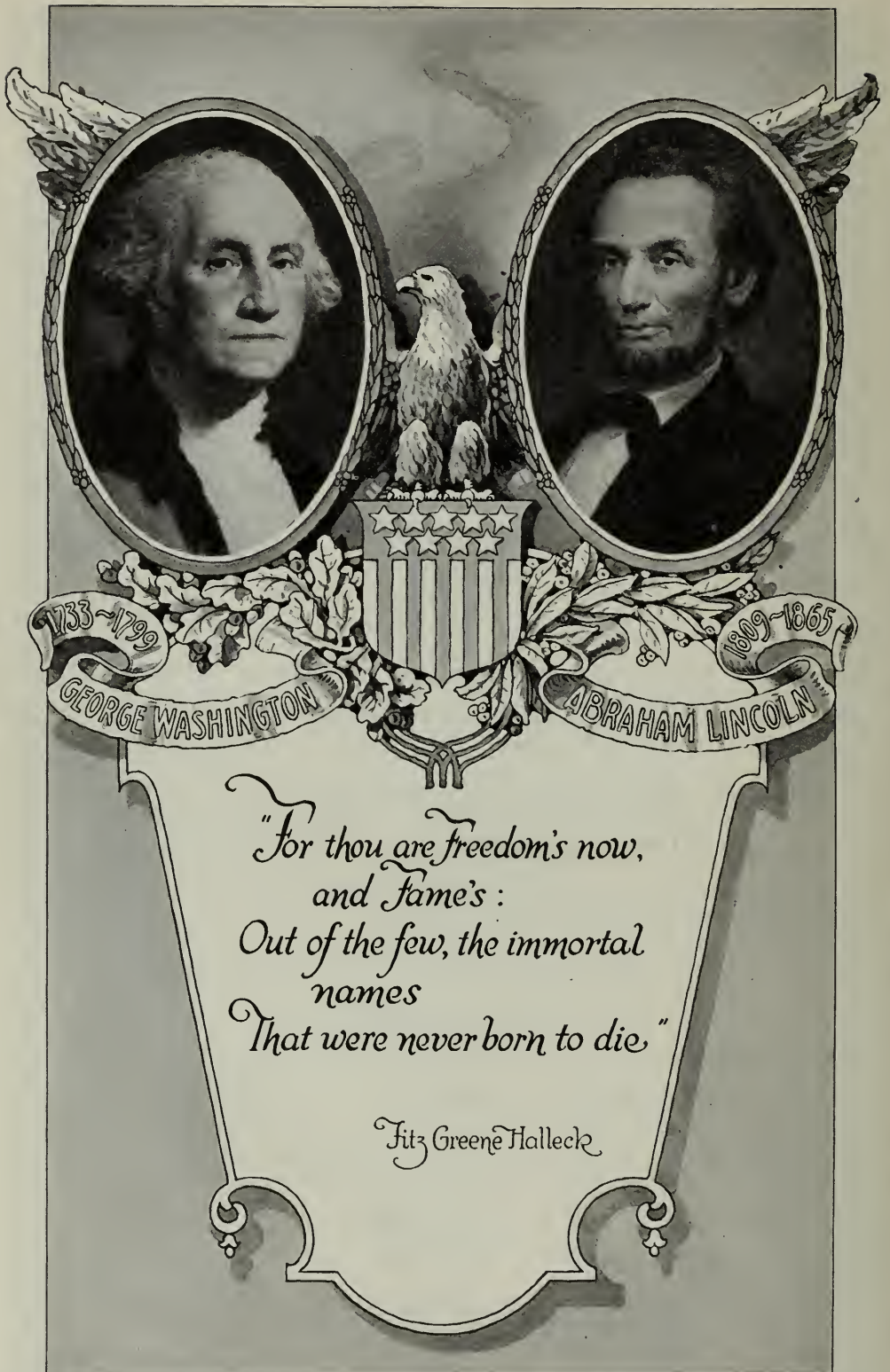
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The month of February is specially honored among the people of the United States, for in that month were born the two greatest American Presidents, George Washington and Abraham Lincoln.

The Marvelous Growth of the Electric Light and Power Industry

By WIGGINTON E. CREED, President of the Pacific Gas and Electric Company

Growth was the outstanding feature of the electric light and power industry during the year 1922.

Much has been said and more written to emphasize the dependence of our modern social and industrial life upon electric energy, but mere words do not tell the story as impressively as do the record-breaking figures for 1922 of increased investment, increased sales, and increased revenues with decreased rates. The flow of capital to an industry is not augmented nor do the sales of its product mount higher and higher unless it is rendering a real and needed service to society.

Investment figures show that at January 1, 1923, the capital in the light and power companies throughout the United States operating as public utilities amounted to \$5,100,000,000, an increase of more than twelve percent in as many months. This figure places these companies, as a class, in the rank of the five or six basic industries of the country which represent investments in excess of five billion dollars.

Of the millions of new money invested in 1922, \$175,000,000 came from the sale of stocks to the customers and patrons of the companies, thus indicating the successful adoption, in a nation-wide sense, of the customer ownership plan which originated in California eight years ago.

Sales of energy in 1922 reached the stupendous figure of 52,275,000,000 kilowatt hours, including resales by distributing companies of wholesale purchases from generating companies. The highest sales record prior to 1922 was in 1920 when 45,678,000,000 kilowatt hours were sold. The significant fact about the 1922 record is that it is a 14.4 percent increase above the peak demand created

in 1920 by the abnormal industrial activity of that year.

Notwithstanding the downward tendency of rates, gross revenues for 1922 passed the billion dollar mark for the first time in the history of the industry. The reported figure is \$1,058,000,000 gross revenues for 1922, which is an increase of \$113,600,000 above 1921, the next highest year, and more than twice the reported gross revenues of 1917. In other words, the gross revenues of the industry have a little more than doubled in five years. Analysis discloses that this remarkable growth in revenue is due to an enormous increase in the number of electrically lighted homes and to the use of electrical appliances in homes; to new industrial, agricultural and commercial-lighting customers and to increased uses by old customers.

Sales of kilowatt hours are, of course, greater than production, due to resales which involve duplication. The electric energy generated in the United States by public utility companies in 1922 is estimated at 48,100,000,000 kilowatt hours. Adding the output of private generating plants (such as those operated by the steel industry), it is estimated that 55,000,000,000 kilowatt hours were consumed in the United States in 1922. All the other nations of the world combined did not use as much electric energy as that. This conclusion is based on the records of world consumption of electricity in 1920, which are the only records available. In that year, the total consumption of electric energy throughout the world was 99,456,300,000 kilowatt hours. In the same year, the United States accounted for approximately one-half of the world consumption, or 49,802,000,000 kilowatt hours. Existing conditions in foreign countries make

it safe to assume, in the light of the 1920 figures, that the United States produced and consumed in 1922 more than one-half the electric energy produced and consumed throughout the world.

As the United States holds the premier position in electrical development among the nations of the world, so does California hold the premier position among the states of the Union. She has the largest network of interconnected electric systems in the country and the most extensive rural electric service.

The statistical position of California in the industry is impressive. With only a little over *three* percent of the country's population, California at the end of 1922 possessed approximately *ten* percent of the entire investment in the country's electric light and power industry; the California output for 1922 was over 4,435,000,000 kilowatt hours. This is an increase of 11.37 percent above 1921, and the total represents approximately 9 percent of the national output of electric energy.

In the development of hydro electric plants and the generation of electricity by water power, California holds a most remarkable record. In 1921, the State produced 21.6 percent of the total kilowatt hours generated by water power in the United States, according to the official figures of the U. S. Geological Survey. The State of New York ranked second to California.

Preliminary figures for 1922 show that California is maintaining her position. The total generation by hydro plants throughout the country in this year amounted to 17,238,803,000 kilowatt hours. Of this total, 3,770,376,000 kilowatt hours were produced by the hydro plants of California, or 21.87 percent of the entire hydro production throughout the United States. New York's percentage was 17.13 percent, again placing that state second to California.

In contrast with a hydro production for the whole United States of approximately one-third of the total electric energy generated, California in 1922 generated 86.2 percent of its electric energy from water power.

Most of the water power projects of the country are now developed, in whole

or in part, under permits and licenses granted by the Federal Water Power Commission. California leads all other states in water powers constructed or actually in process of construction under the provisions of the Federal Water Power Act. New York is a fairly close second, but all the other states are far behind California and New York.

In 1922, 152,815 horse power was added to the installed capacity in the State; projects under construction but uncompleted at the end of the year amounted to 272,525 horse power.

The future will bring additional developments of water powers in California. More and more industries, more and more farms and more and more homes are calling for kilowatt hours.

A study of the kilowatt hour output from both hydro and steam plants in California discloses what these future demands will be. During the period 1911 to 1922, inclusive, the total state output increased from 1,680,000,000 to 4,435,000,000 kilowatt hours. This growth amounts to something over 11 percent per annum compounded annually. Projecting the past rate of growth to the year 1930 indicates that the requirements of California in that year will be something like 10,356,000,000 kilowatt hours and an installed capacity in steam and hydro plants sufficiently large to care for a peak in kilowatts of 1,970,000. The peak in 1922 was approximately 850,000,000 kilowatts. The increase in the next eight years will vary from approximately 95,000 kilowatts, 1923 over 1922, to 195,000 kilowatts, 1930 over 1929, or a total increase of 1,120,000 kilowatts during the eight-year period, making an average of approximately 140,000 kilowatts per annum.

If 75 percent of this increase is cared for by new installations, a low estimate, there should be installed in the next eight years 105,000 kilowatts of hydro capacity per annum. Allowing a capital cost of \$250 per kilowatt from diversion to primary sub-station and \$150 per kilowatt additional for distribution, hydro developments alone will call for an average annual investment in California of more than \$40,000,000.

How the Men of "Pacific Service" Battle With the Storms of Winter

By W. J. CRABBE, Superintendent, Drum Division



Drum canal during a lull in one of the heavy storms of last year.

"Pacific Service," what is it? What does it mean? The average person does not give it much thought other than to think of it as the slogan of the Pacific Gas and Electric Company. It is all that and more. It is on the tongue of every loyal employee. Go where you will over the company's system, you may hear the crews after some particularly hard job that has been rushed through in fast time saying: "Now that's what I call 'Pacific Service.'" And so it goes.

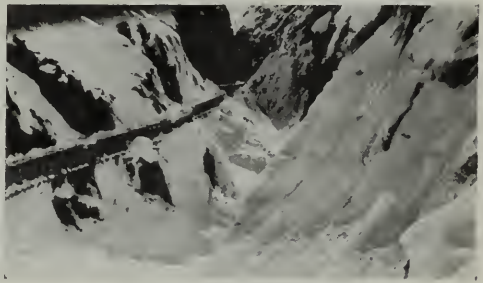
The winter months of 1921 were particularly severe and the old slogan was worked overtime. It was "Pacific Service" before Christmas, when heavy snows in the mountains broke down practically every transmission line. Telephone communication was crippled for days, yet the transmission of power was interrupted only for very short periods. Men were out day and night, fighting through the blizzards, on snowshoes, on skis, cold, weary, oftentimes hungry, continually climbing out of holes in the soft snow, plowing onward along the lines until the trouble was found and repaired. The snow was so soft and deep that in one instance two men made four miles in seven hours. Yet they did not turn back. They just thought of their plain, ordinary duty, and kept on.

Christmas day, 1921, will long be remembered as one that called for a reserve supply of "Pacific Service." In

this case the usual order of things was reversed. The mountain sections were hardly disturbed while the valley sections were nearly demoralized. But the same thought, the same ideals, prevailed. Early during the forenoon men voluntarily left their firesides, where the kiddies were playing with their toys, left all the joys of Christmas day, to battle with the elements that the lights might continue to burn. Men started out before finishing breakfast and did not get in until nearly midnight, without a bite to eat during that time. Christmas dinner had been kept hot for them since midday and they ate it with relish and good cheer at midnight.

Miles of telephone lines were down, messengers were kept busy bridging the points where communication was cut off. In one instance it was necessary to bridge a gap of twenty miles before men could be allowed to work on the power line. Within an hour the messenger was back with a clearance, and—power was on the line again in a very short time. Other difficulties encountered and overcome were mere details of the day's work.

On the South Yuba flume an avalanche swept down from the canyon above, burying the flume under tons of frozen snow. As it was impossible to



AFTER THE STORM

The South Yuba canal below Spaulding. It looks so peaceful and grand, but twenty to forty feet of snow lie in the bottom of this canyon.

cross over or go around the barrier a tunnel was cut through the slide and the patrolman completed his beat.

It is seldom a winter passes without some battle with the raging elements that lingers in the memory of the men of "Pacific Service" whose work is amid the Sierra snows.

In spite of almost superhuman effort the snow fell so heavily one January day that the Drum canal became blocked with drifts and froze into a solid mass of ice. Hours of untiring work by the crews finally started the water flowing again.

At Spaulding power-house Number Two, situated just below the great dam, the little building became completely covered with snow. The operators went on and off shift through a snow tunnel seventy-five feet in length. Yet the plant was kept in operation, the generators turning as usual under their blanket of snow twenty feet in depth.

Men interested in their work and the welfare of their fellow men will go to



Spaulding power-house No. 2 was completely covered with snow and the operators had to crawl through a seventy-five foot snow tunnel to get to it. The plant was kept in operation. "Pacific Service."



AVAILANCHE ON THE SOUTH YUBA FLUME
It was impossible to get over or around this snow slide, so a tunnel was cut through it.

great lengths to accomplish a purpose. A "First Aid" meeting was scheduled in one of the mountain towns, and although a storm was brewing several went to the meeting, a distance of twenty-two miles. The storm turned into a regular blizzard, and to get back to their stations the men fought the elements for seven long hours and arrived back just in time to start out on tower line trouble. Not a word of complaint was heard, it was all in the day's and night's work.

The steel towers and heavy copper lines that are to be seen cutting straight across hills and valleys invariably start from a point deep in some mountain canyon. For, there is the source of energy, the bottom of the waterfall, the large turbines and generators that turn the water into electric power. It hardly seems possible that anything can happen to these towers or lines, yet the storm sometimes outwits the ingenuity of engineers and the wire is pulled apart. Of course, this happens during the worst of the storm and the wire must be repaired at once to keep up "Pacific Service." Out they go, six or eight men, by truck or team, ploughing through unmarked roads and trails, measuring miles by the day rather than by the hour. They go as far as possible by conveyance; then there is usually a long drag on foot, each man loaded up with rope and blocks and other equipment necessary to pull the heavy wire back into place. With the wind biting cold, blowing a gale, perhaps, men climb the steel framework of the towers seventy-five to a hundred feet in the air, clinging to the sleet-covered braces

they work until the job is complete. Sometimes their bodies are so numbed that other men have to help them to the ground. Then comes the long, weary return journey. This kind of labor cannot be bought. It has to be either loyalty or conscription, and "Pacific Service" needs no conscription.

Those of you who have not seen or combated a mountain blizzard can have no conception of the treacherous storm and blinding snow. Men have gone from their homes to traverse paths that were well known to them, only to become lost as children in the woods; others have given way to that delightful drowsiness that comes over one when fatigued and cold, and have gone to sleep never to wake again; others have dragged through with a dogged will, with tears in their eyes, with frozen fingers and toes. And they all have done it without complaint or hope of reward other than their daily wage. It's all part of "Pacific Service."

There are two types of men who make up the personnel around which this

article is woven. These are the linemen, whose duty it is to keep the lines up, and the watermen, whose duty it is to keep the water flowing.

The men in the make up of the line crews and those upon whom the responsibility of keeping service is imposed, are of the bulldog type. They have determination, deliberateness, are ready to fight at the drop of the hat, display a certain amount of bluster, and, like the bulldog, they growl while biting. But, they mean business.

The watermen, upon whom another great responsibility rests, are of the Collie dog type, quiet, true and faithful, somewhat easy-going, and graceful in their actions. They are the men who keep the water flowing in the canals and flumes that hug the sides of the canyons for miles and miles. It does not sound very difficult, does it? "Just keep the water running." But have you ever seen it snow so hard, with the temperature so cold that the water freezes from the bottom up and clogs from the top down, with an avalanche from cliffs



A winter scene along Bear River in the vicinity of Drum power-house.

hundreds of feet high coming down into the canal or flume?

If the water is shut off for only a few minutes, the damage is done! When this happens it takes weeks to get the canal open again. Men ski miles to their work, are in the biting cold water all day long, sometimes up to their waists, fighting the ice and snow, trying to break it away to keep the water flowing. These men you seldom hear of, but "Pacific Service" is their motto just the same. The power-houses must run, far away cities must be lighted and heated, industries must be operated

with uninterrupted supply of electric energy, fed from this "white coal." So they keep at it with only one end in view—"Pacific Service."

The steam and gas men's slogan is also "Pacific Service." They are striving just as hard in their line of endeavor as the others mentioned. They see more of the actual benefits derived from "Pacific Service" than their brothers of the hills, and are like the deck hands on a ship in that they see where they are going, while the stokers in the hold only feel that they are going. We of the hills are the stokers.

A Typical Winter At Spaulding

BY LELA HOWARD NELSON

On the 17th day of December the first snow of the season began to fall. It fell without interruption, silently, relentlessly, tempestuously, until Christmas Day; a day that dawned, set apart in white, as if prepared in purity for celebration of the Saviour's birth. Nor was the preparation superficial. The snow lay deep. The great mountains of rock were covered with a quilt as downy as that of an infant's crib. The trees drooped in solicitous attention under their weighty crystalline robes. The cottages, like igloos, nestled, deeply sheltered, and contentedly each sent up its curling column of blue smoke.

Our jolly old Saint Nick did not forget Spaulding on that day in spite of the previous week of terrible storm. The patient postman brought the Christmas packages on skis over unbroken snow not yet packed enough for comfortable travel. Indeed, it took two men eight hours to make the six miles' round trip one day. However, Spaulding may always have the mail no matter how severe the weather. Fortunately, Smart depot is only one and a half miles distant over an easy grade. Every man in camp found himself fighting to keep the system in operation and due to unremitting effort the havoc wrought was



A shovel is a mighty handy thing to have during the winter months at Spaulding

cleared up in an incredibly short time. After two unsuccessful attempts to patrol the five miles of line to Bear Valley, the linemen succeeded and found snow piled 30 inches deep on the insulators. It clung to the wires, even broke them in places. It eventually buried the local telephone and electric lines. Such difficulties made necessary a close guarding of the local system all winter, for the storms followed each other rapidly and were generally of long duration. New trails had to be broken almost daily, the roofs shoveled and water pipes mended.

The readings on the gauge rose steadily until nine feet was reported. On March 16 the report read 11½ feet, the deepest. The most lengthy storm lasted



Winter scene in the snow-shed region,
near the Sierra summit.

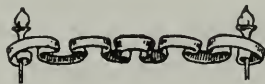
for ten days without intermission. However, the lowest temperature was only one degree above and that for just one night. The snow receded slowly, for the spring set in fully a month late. Not until May 15 was the report down to three feet. On May 8 and 9 a cold wave left 24 inches of new snow. The sun seemed to lack its usual intensity and not until June 1 did it shine on bare ground. As late as July 1, enough snow could be found, sheltered under the big trees, for the ice-cream freezers. Red Mountain had liberal splashes of white on its brick-red crest.

One of the worst difficulties encountered was to keep the canals open. The Yuba ditch was blocked. Such a fall of snow caused frequent slides. In order to insure some degree of safety, the men traveled two and two. The almost perpendicular snowshed between power-house No. 1 and power-house No. 2, on the floor of the Yuba canyon below the dam, was wiped out by a heavy slide which also buried the power-house. It broke in the big door and lodged against the generator. No. 2 is an automatic unit, so no one was on duty there, although an operator inspects it once every eight hours.

During the early winter the lake was drained in order that the huge lower grizzly might be cleaned and repaired. Luckily the work was undertaken during the only sufficiently long interval of clear weather that occurred all season, therefore, it was done quickly and easily. The lake at this time merely outlined the old river channel, exposing the deep and narrow Yuba gorge. The old dam, built by the hydraulic miners in 1892 across this channel, stood 70 feet out of water. The water level did not rise again to interfere with the formation of a thick ice-cap over the lake. After the lake began to spill, icebergs eight feet through floated on it.

Even though the winter at Spaulding was long and severe, many of the native birds and animals stayed in and survived its rigors. The bluejays, with their usual sauciness, hopped from limb to limb, expectantly alert for crumbs from kitchen windows. The woodpeckers also found food. Several coyotes were trapped by railroad workmen stationed at Smart. Skunks succeeded in entering the chicken coops. One bear was killed between Lake Spaulding and Fuller Lake. In the early spring a party of hikers saw a mountain lion near Fuller Lake. Red fox frequently skulked about the basement doors at night in search of possible garbage. Other more shy fur-bearing animals are sometimes seen about the lake.

Such a winter at Spaulding is wonderfully beautiful, healthful and invigorating. The children, even, are expert on skis and coasters. They are pictures of perfect health all the year round. No one suffered a cold during the entire months of snow until the spring thaw began. The thrill of such a winter is worth while.



How "Pacific Service" is Aiding Development in the Sacramento Valley

The Development of Reclamation District No. 108 and River Farms Company

By J. W. COONS, Manager Yolo District

Reclamation District No. 108 is one of the oldest and one of the largest reclamation districts in Northern California.

It is a reclaimed tract of river bottom land that lies along the west side of the Sacramento River, and is about twenty miles in length and about six miles in width. It extends from a point close to Knights Landing almost to Grimes. A greater part of the land lies in Yolo County. The northern portion of the tract is in Colusa County.

It is entirely surrounded by high levees. The levees on the rear protect the land from the drainage water that runs from land on the west side of the Sacramento Valley.

The district was formed in 1870, and was first closed in 1874. It was reorganized in 1911, at which time about twenty thousand acres of reclaimed land were added. Most of this land belonged to the River Garden Farms Company, which is now known as the River Farms Company.

The formation of this district was not accomplished without many difficulties. The first problem was to establish the right to close Wilkins Slough at its outlet at the Sacramento River. This was done in 1874 after several years of litigation. This diverted drainage water

from the country west of the district around the back levees to Sycamore Slough, which emptied into the Sacramento River at Knights Landing from the Wilkins Slough Outlet.

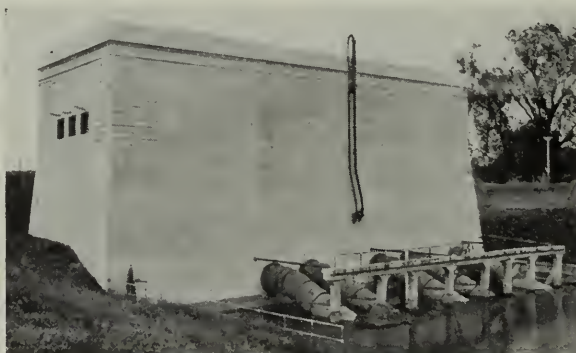
This diversion of the drainage water would back up in Sycamore Slough from the Sacramento River when it was at high stages, and in extreme conditions the water would overflow the back levees and flood district. To overcome this condition the Knights Landing Ridge Drainage District was formed. This included all of

the land in Reclamation District No. 108, and many thousands acres of land outside of the district. It was formed to provide a means of diverting this drainage water, and to prevent the Sacramento River from

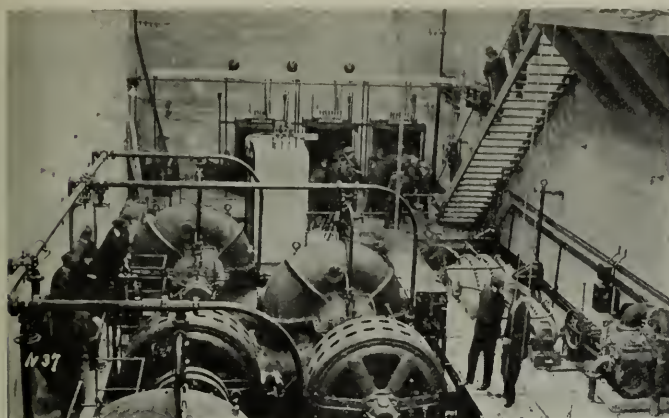
backing up through Sycamore Slough.

This Drainage District constructed a set of locks at the outlet of the slough, which would allow the water to flow from the slough to the Sacramento River when at low stages, and would prevent the water from flowing back from the river.

A canal was dug through the Knights Landing Ridge, from Knights Landing to the Yolo Basin. This was about seven hundred feet wide, and six miles in length. Legal action prevented the opening of this canal when it was first



Rear view of Reclamation District No. 108 pumping plant, capacity 3000 horsepower.



Interior view of Reclamation District No. 108 pumping station, showing two of the five pumps.

completed. A favorable court decision, however, was rendered February 21, 1915, and on the following day the barrier at the head of the new canal was cut. This was a historical event in the affairs of the Reclamation District No. 108, as that day marked the final completion of all of the work necessary to make the reclamation plan a success.

In connection with the formation of a reclamation district it is necessary to construct drainage ditches to carry the river seepage water and the rain water to some low point, and pumps have to be installed to handle such water. This district has built about 145 miles of drainage ditches for carrying the water to the main pumping plant that is located on the Sacramento River at a point about seven miles north of Knights Landing, and in Yolo County.

This pumping plant is one of the largest of its kind in the country. It consists of five 600 horsepower electric motors that are directly connected to centrifugal pumps. The capacity of the plant is 504,000,000 gallons per day, which is a quantity sufficient to supply the needs of a city of 5,000,000 people. This quantity of water

reduced to second feet gives a flow of 775 cubic feet per second, which is equal to one-third the average stream-flow of Pit River.

The trustees of the district realized that best results from land in California are obtained through irrigation, and in the year 1919 they completed the erection of a modern plant at Wilkins Slough on the west side of the Sacramento River. This is the slough that was closed

in 1874 when the district was first completed. This plant obtains water from the Sacramento River and pumps it into the old slough channel, which has been widened and deepened. The water flows by gravity from that point through canals to the various ranches in the district. The water is then pumped from the main canal by means of electrically operated pumps that are located throughout the district.

The pumping plant building is quite deep and narrow. It stands about twenty feet above the top of the levee and is eighteen feet wide and forty feet long. It extends from the top of the levee down to the top of the tunnels which were installed to allow the water to run through by gravity. The depth



Dredger cutting dam at head of canal, near Knights Landing.

is approximately forty feet below the top of the levee. The pumps and the motors, direct-connected, are set up on the lower floor which is directly above the tunnel. On the gallery between the lower and the upper floors is the switch-board equipment and the exciter sets. The upper floor, on a level with the top of the river levee, is used only for an entrance.

The pump equipment to date consists of five Wood screw pumps, named after Mr. A. B. Wood of the New Orleans Sewage and Water Board, and designed to operate very efficiently at low heads. Each of these is directly connected to a synchronous motor by means of a shaft that extends through the pump-house wall to the pump which is located on the river side of the pumping plant. These were installed on concrete piling as shown in the lower part of the accompanying illustration. The pumps are designed to throw 100 second-feet when operating under an eight-foot head. The pump runner is shaped like a ship propeller but with more blades. A cut of the runner is shown herewith. The pump itself is approximately the same diameter as the suction pipe and from external appearances it would be taken for a part of the pipe. A set of blades shaped very similar to those on the runner are in the pump at a point directly adjacent to the pump runner. These blades tend to prevent the water from setting up a whirlpool or whirling motion in the pipe and the water after



View of a part of River Farms Company's headquarters.

passing through them is directed in straight line motion toward the discharge. The pumps are primed while they are running at full speed, and that is one reason why synchronous motors can be conveniently used for operating them.

The synchronous motors are each rated 175 horsepower and running at 240 revolutions per minute. They are supplied with 440-volt, three-phase, a. c. current, sixty cycles. The exciting current is supplied by a small motor generator set which delivers direct current at 125 volts. The principal reason for selecting synchronous motors was the price, induction motors to operate 240 revolutions per minute being considerably higher than synchronous motors for the same speed.

The Wilkins Slough pumping plant has a capacity of 466,000,000 gallons of water per day, which is sufficient to irrigate 35,000 acres of rice land, and about double that acreage of land for other kinds of crops.

The trustees of Reclamation District No. 108 are Mr. Jesse Poundstone, President, Mr. E. L. Dow, and Mr. J. H. Balsdon, and to them and to their predecessors a great deal of credit is due for converting about sixty thousand acres of land that had been useless into valuable productive soil.

Generally a reclamation district has many land owners in it, who pay their proportions of the expenses, depending on the benefit derived by each. In this district there is one farming company, known as the River Farms Company, that owns approxi-



A combination harvester used by River Farms Co. on their large grain fields.



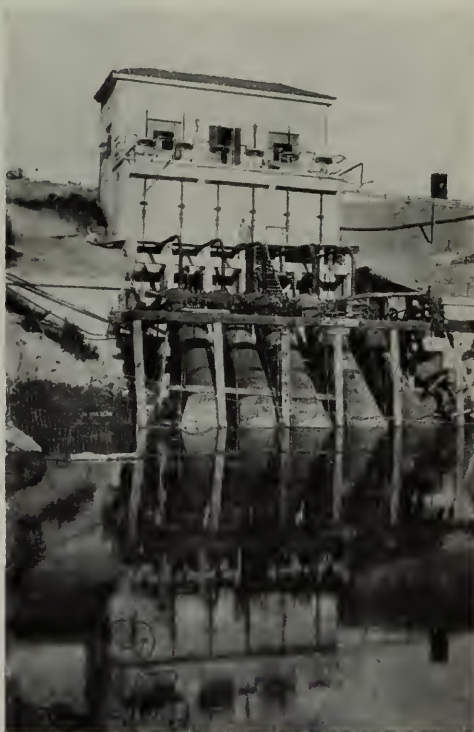
View of River Farms Company orchard.

mately 28,000 acres, most of which is in Reclamation District No. 108. The River Farms Company was organized as two different companies in 1913, and consolidated into one company bearing the name given in 1916. The officials are: Mr. E. L. Dow, President; Mr. H. C. Morris, Vice-President; Mr. H. A. Kunz, Secretary. Mr. James McCandless, Mr. John McCandless, Mr. Chas. Sutro, Mr. C. A. Miller, Mr. W. H. Taylor and Mr. Hiram Johnson, Jr., are the directors. Mr. Robert Geer is the manager of the farm, with headquarters near Knights Landing.

The River Farms Company's property is a tract of 30,000 acres of land that lies along the west side of the Sacramento River, and extending from Knights Landing north nearly to Grimes. Most of this land is in Yolo County. The land is planted to various crops about as follows: orchard 1300 acres, rice 10,000, barley 15,000 acres, pasture 2000 acres, and the balance to other crops. The orchard is planted to prunes and pears. It should begin to bear this year. The yield of rice has been as high as sixty sacks to the acre. The crops harvested in one year have exceeded \$1,000,000 in value. A complete and up-to-date dairy is a part of the holdings. They have had 600 beef cattle, and 4000 sheep on the ranch.

The River Farms Company is convinced that it pays to irrigate, and in accordance with this belief there has been installed pumping plants from

one end of the holdings to the other. Some are very large, as will be seen from the list as follows: Orchard plant 500 h.p., Alfalfa field 50 h.p., Eldorado Bend 800 h.p., Tyndall Mound, 600 h.p., Boyers Bend 450 h.p., Hansen tract 30 h.p., Wilkins Slough 300 h.p. Also, a number of small motors are used at the dairy and at headquarters.



River view of Wilkins Slough pumping plant, Reclamation District No. 108.

We hear a good deal about "Builders of the West," and among that list should be included such men as these, who have the courage to devote their time and money to increase the productive acreage in this great State of California.

To Mr. Fred Tibbets, Civil Engineer we are indebted for the greater part of this information, also for photographs of the reclamation district.

El Camino Rancho, An Old Spanish Grant

By H. B. HERYFORD, Manager West Side Division

In the north end of the Sacramento Valley lies one of the richest bodies of sedimentary land in California. It is embraced within what is designated by the U. S. Government as the Thermal Belt; so-called because of certain warm air currents which come in from the Japan current of the Pacific Ocean through a pass in the Coast Range. Due to this peculiar climatic condition the finest and earliest fruit in California is produced. The land in this area is held in large ownerships and in the main has never been placed on the market because of its high earning power in grain farming, a policy which has necessarily retarded the development of its far greater wealth producing capacity.

Underlying this vast tract of land are huge underground lakes and rivers. These are today being tapped by wells of greater or less depth, and by means of electrically-driven pumping plants the water is raised and distributed over the land at an almost nominal expenditure. This region is the greatest potential consumer of electric energy for agricultural purposes in the State. In



Headquarters, El Camino Rancho.

consequence, it is destined, with the increased development of water, to become California's greatest fruit-growing district.

Some of the producing orchards are today paying the greatest returns recorded in the State, and this, of course, stimulates further development and expansion of the orchard industries.

The Pacific Land Corporation, with headquarters two miles south of Proberta, is colonizing El Camino Rancho—one of the richest of the old Spanish grants in the Sacramento Valley. It is developing and distributing subterranean water in this manner, and large numbers of people from Southern California, from the Middle West, and from the Eastern States are eagerly embracing the opportunity to secure real income-producing homes under its system.

The ranch comprises about 8000 acres of fertile soil on which, lying here and there at the most desirable points, are to be seen the already operating wells, while many others remain to be drilled and electrically equipped. From these sources of supply, sometimes in open streams but principally in underground pipes, the water is led to the numerous points of



El Camino Rancho. Testing Weir well No. 2.



El Camino Rancho. Discharge pipe well No. 2.

final delivery and there, by the mere turning of a valve, the stream is applied to the roots of tree or plant where required without loss, without labor and at the minimum of expense.

Thus is demonstrated the successful co-ordination of the achievements of modern science with nature's boundless resources, with results shown in countless acres of prolific orchards where once were to be seen only the parched grain fields of unirrigated land.

It is estimated that when the project is fully developed the population of Tehama County will have been increased 3000, an average of one family to every fifteen acres. Ultimately the connected load in irrigation pumps will be 1000 h. p., all driven by electric motors, connected to "Pacific Service" distribution lines.

In Commendation of "Pacific Service"

In an age like the present, when the public utility problem is engaging the public attention everywhere and the public service corporations generally are under the eye of public scrutiny, it is pleasant from time to time to record expressions of appreciation from public men in whose eyes an institution like "Pacific Service" finds favor. As witness the following:

INDUSTRIAL ACCIDENT COMMISSION

of the

State of California

DEPARTMENT OF SAFETY

San Francisco, December 2, 1922.

Mr. Paul M. Downing, Vice-President in Charge of Electrical Construction and Operation, Pacific Gas and Electric Company, 445 Sutter Street, San Francisco.

Dear Sir:

Recently, I had the pleasure of visiting the Vacaville Substation of the Pacific Gas and Electric Company and, with Mr. P. I. Kurtz, made a general survey of the electrical equipment at the station.

Your company has provided a great many devices for the protection of the employees and it would seem as if, under normal conditions, it would be practically impossible for one to be seriously injured.

The system of barriers, gates, and screens which has been provided, and the locks and interlocking devices which have been supplied, in conjunction with your operating rules and methods, would seem to provide for almost any contingency.

Yours very truly,

G. E. KIMBALL,
Electrical Engineer.

Niles, California, December 7, 1922.

Mr. L. H. Newbert, Pacific Gas and Electric Co.,
13th and Clay Streets, Oakland, California.

Dear Mr. Newbert:

I want to assure you how genuinely I appreciate your ready help in erecting our public flag pole at Niles. I have long been interested in a flag pole for our little town, and as chairman of the committee have had much to do with the work of securing it, and although our citizens have been very helpful through it all, no one thing has been quite so pleasing as your willing help in doing that which we had neither men nor means to do ourselves. It was, indeed, mighty nice of you and we shall not forget it.

In behalf of our committee and of all our citizens I wish you to accept and convey to the Pacific Gas and Electric Company our heartiest appreciation of the service rendered.

Sincerely yours,

F. VERNON JONES, Chairman,
Chamber of Commerce Committee.

Our 1923 Advertising Campaign

By J. CHARLES JORDAN, Publicity Department

Advertising is but a part of a general co-operative plan whereby we hope to better acquaint our customers and prospective customers with our policies and the products we have for their convenience and use.

The problem is to reach the people so that the public may be correctly informed and that public opinion, thus enlightened, may move in the direction of assisting us to better perform our tasks.

To be successful, company advertisements should be read by every employee and the messages therein passed on to others.

In the conduct of a public utility business, public opinion is the great moral force. If we do our part as the public expects us to do it in forming favorable public opinion, our problems will be easily solved and all will prosper together.

Practically every one in the many communities we serve finds that our commodities enter into their daily lives and so no longer accepts them as a matter of course. The interest of the average consumer, in us, is governed by his realization of the service rendered. Enlightenment of consumers is the requirement of today upon which depends our future success. Consumer co-operation leads to mutual benefits and demands a more direct assumption of responsibility by all concerned.

The full recognition of the mutual responsibility of employees and of the consumer is rapidly developing. Advertising during 1923 will be designed to bring about this condition. Consumers are the employers, the work is done for them and they pay accordingly. The public is always fair when it understands.

It is up to the men and women of "Pacific Service" to see to it that individually and collectively the public does understand our aims and purposes. Each and every member of "Pacific Service," as a matter of daily and individual

service, should see that each consumer is properly and adequately served.

Then, next to doing the right thing, the most important duty is to let the public know that you are doing the right thing.

Our 1923 advertising will be divided into two classes, viz., institutional and sales. For each of these classes copy will be written for exclusive gas and exclusive electric territory and for combination gas and electric territory. There will be two standard sizes of institutional advertisements, and for the sales advertisements there will be three standard sizes; thus reducing the mechanical work to a minimum.

The sales department will use some sixty-eight publications and the space will be divided to provide for two subjects, gas and electric. The gas advertisements will have three classifications, respectively, gas heating, gas ranges and gas water heating. The electric advertisements will be divided up to cover several subjects, among which will be electric ranges, electric water heating, electric space heating and illumination. A considerable amount of direct mail advertising is in the program so as to thoroughly cover the field.

The desire in the 1923 campaign will be to make the advertisements as well as every other phase of the company's activities of greater helpfulness to our consumers than ever before.

The copy will give facts on public utility problems. It will bring attention to the basic principles of the use of "Pacific Service," gas and electric, effecting the consumer's income. It will tell how to get the most in convenience, health and safety from the use of "Pacific Service" for the least cost. In all 57 daily, 127 weekly and 6 monthly, or a total of 190 publications, will be used. The publications will have a combined circulation in excess of 1,500,000, or, approximately, one paper for each person in the territory served.

These
messages
are written
that the
public
may know



Greetings 1923

Hear Ye and Take Heed

The officials of the **PACIFIC GAS AND ELECTRIC COMPANY** desire to make the advertising and every other phase of P. G. and E. activity of greater helpfulness to customers in 1923 than ever before. It is the ambition of this company to make even its advertising render a real service to customers.

To all Men
For you, the P. G. and E. advertising for 1923 will give facts on public utility problems. It will also bring to your attention basic principles of the use of Pacific Service (gas and electricity) affecting your income.

To all Women
How to get the most in convenience, health and safety from the use of Pacific Service (gas and electricity) for the least cost—that is the message which P. G. and E. advertising is to carry to you this year.

To all—our sincere wish is that you may have a happy and prosperous New Year.

PACIFIC GAS AND ELECTRIC COMPANY
A California Company with 25,000 serving homes in the state.



G • and E •

"PACIFIC SERVICE"

We aim to
make them—
Attractive!
Interesting!
Instructive!

Instant HEAT from GAS-fired heating systems



JUST PRESS THE BUTTON and start heat instantly on its way up from the basement. Certainly that would be appreciated on cold mornings when you are about half awake. Such comfort and convenience are a constant delight in homes that are equipped with electrically-controlled gas heating systems.

Gas heating systems of the type recommended by this company are so flexible or adaptable that they can be adapted to any style of home or small building. They are really installed and working while you are asleep.

Ask P. G. and E. gas heating engineers for detailed information or assistance in your heating problems.

PACIFIC GAS AND ELECTRIC COMPANY

P • G •
"PACIFIC"



The Mightiest Servant in California

EIGHT THOUSAND PEOPLE—employees of the P. G. and E.—good of their best efforts during 1923 in order that Pacific Service (gas and electricity) might contribute its maximum to your comfort, convenience, pleasure and general well-being day and night.

The measure of the success of these efforts lies in your satisfaction. Should your satisfaction with Pacific Service not be complete for any reason, we will deem it a favor if you will call at the local P. G. and E. office and discuss the matter in detail.

PACIFIC GAS AND ELECTRIC COMPANY
A California company with 25,000 serving homes in the state.

P • G •
"PACIFIC"

ELECTRIC SIGNS SELL GOODS



DRESS UP the front of your store with an attractive electric sign. You can spread the cover over a long period of partial payment—and the sign will begin to pay for itself right from the start.

Electric signs draw trade from afar. They focus attention on a store and shine out by night. They bring business and all good.

Telephone or write our nearest office for particulars of our advertising plan.

ELECTRIFY
Are your show windows properly lighted?
Ask us

PACIFIC GAS AND ELECTRIC COMPANY
A California company serving over 25,000 customers of electricity.

P • G • & E •
"PACIFIC SERVICE"

OUR "PACIFIC SERVICE" EMPLOYEES ASSOCIATION

On the evening of January 27, San Francisco Section gave its second annual Mardi Gras ball at the St. Francis hotel, the Colonial and Italian ball-rooms being specially decorated for the occasion.

Although the evening was stormy, it was not long after the music had started that the floors of both rooms were crowded with some nine hundred gaily dressed dancers, who made the event one to be long remembered. It was decided by the committee in charge that there would be no prizes as it would have been very difficult to have made a selection from the beautiful costumes worn. It was, indeed, a gala occasion, with a riot of color and original and gorgeous costumes everywhere.

The boxes upstairs in the Colonial room were reserved for the executive officers of the company and their families, and the officers of the parent body of the P. S. E. A. Among those who occupied boxes were: P. M. Downing, W. G. Vincent, Jr., Henry Bostwick, E. G. McCann, Miss Dale, J. Worthington and R. W. Du Val. The committee in charge of the affair consisted of Grover S. Tracy, sectional chairman, who had charge of the floor, assisted by Jas. M. Williams; they, in turn, were assisted by the program and reception committees headed, respectively, by A. Gudehus and W. McDonald.

It was altogether one of the most enjoyable affairs given by San Francisco Section and does it much credit.

At the regular monthly meeting of the Executive Committee held February 13, the proposed Disability Plan was the main topic of discussion.

A tentative plan had been presented to the Executive Committee at its January meeting and each sectional chairman had been given a copy with the request that he discuss the plan with members of his section and come to

the February meeting with recommendations or suggestions. Since then good progress has been made, and it is confidently expected that the plan will be in operation by May 1.

The object is to render financial assistance to members of the association in case of illness. Very often illness and the consequent discontinuance of salary or wage works a hardship upon the worker and his family, and some insurance against that contingency is a matter of importance to all employees. With a membership as large as that of the Pacific Service Employees Association, such a plan must be carefully drawn up so that it will work in practice as well as in theory.

Announcement of special interest to all of our readers is the calendar of social events for the different Sections of the Association.

The wide diversity of this program makes it attractive to all classes of membership. It affords the lowlanders an opportunity for winter sports at the snow party, the city dweller a bit of spring with nature at her best in the raisin fete and the spring picnic; the annual picnic in Marin County breaks the summer monotony when the vacation spirit is paramount, while the annual dinner is an opportunity for outside members to enjoy the hospitality of the bay sections.

Numerous articles on the value of education are appearing daily in magazines, newspapers and various periodicals. During the war a great deal of time was lost along the line of educational achievement and we should now appreciate our opportunity to catch up, since education plays such a vital part in our lives when we have to cope with every day problems.

The Pacific Service Employees Association affords a wonderful opportunity

for self-improvement in the study of its carefully prepared courses on commercial sales and accounting, steam, electricity, gas and hydraulic engineering. The Company's employees have spent

The electrical course is being given again this year, and it is hoped that interest will be in proportion to the kilowatts generated at the plant. There are about seven signed up for the course at

Feb. 24.....	Saturday.....	Snow Party.....	Truckee.....	Sacramento Section
Apr. 21.....	Saturday.....	Raisin Fete.....	Fresno.....	Fresno "
May 12.....	Saturday.....	Spring Picnic.....	Modesto.....	San Joaquin "
June 16.....	Saturday.....	Annual Dinner.....	Oakland.....	Oakland "
July 14.....	Saturday.....	Annual Picnic.....	Marin Co.....	North Bay "
Sept. 8, 9, 10.....	Sat., Sun., Mon.....	Annual Outing.....	De Sabla.....	De Sabla "
Oct. 27.....	Saturday.....	Hallowe'en Party.....	Red Bluff.....	West Side "
Nov. 19.....	Monday.....	Annual Meeting.....	San Francisco.....	San Francisco "
Dec. 15.....	Saturday.....	Xmas Show.....	San Francisco.....	San Francisco "

considerable time and effort in the preparation of these courses, which are offered free to members of the P. S. E. A. The only charge is for any reference books which may be necessary in connection with the courses, and these are furnished the students at a reduced rate. Portable laboratory equipment is also supplied which may be taken from class to class, so as to give the students the advantage of practical experience as well as book knowledge.

It is very encouraging to report that much enthusiasm was expressed at the first two committee meetings held January 16 and January 30. Upon the latter occasion the chairman presented an organization chart and the committeemen selected were informed of the activities planned for the present year. The work was grouped into miscellaneous classes, viz.: Preparation of courses, class organization, meetings, lectures, records, publicity and P. S. E. A. "News." It is the intention of the chairman to keep the members well posted on everything in connection with the educational classes through the columns of the "News." The educational plan this year will be a strenuous one, as may be gathered from the general scope of the work; but, so far, the outlook is very promising.

Educational courses have been started with quite a bit of enthusiasm at Pit No. 1. In spite of the unstable conditions in a construction camp on the point of breaking up, the enrollment is quite encouraging.

the present time. The new course in elements of hydraulics, however, is attracting the greatest interest. This is such a vital subject that ten men have already signed up and several more have signified their intention of doing so. The many practical applications close at hand add more to the interest. It has been suggested that laboratory experiments might easily be made on some of the subjects, as for example: the discharge through orifices, the flow of water in pipes and the flow of water in open channels and rivers. With these attractions good progress should be made in this course.

Pit No. 1 Section held its first meeting of the year on January 9. The meeting was called to order by the old officers, but as new matters came up it was turned over to the officers elected for the new year. Appreciation of the efforts of the outgoing officers was voted unanimously.

Pit No. 1 basketball team, under the exceptionally good coaching of Harry Lee, is having a very successful season. However, because of the cold weather and snow blocked roads, it is difficult to get competition. Pit No. 1 has won from all the teams in the vicinity and is willing to tackle any team under the 300-lb limit. Pit section only hopes that some other section of the P. S. E. A. will gather sufficient pep to organize a team and mush its way through the mountain snow for a game.

The Financial Side of "Pacific Service"

Following is the Company's preliminary income account for the year. While it is subject to possible modification, it is not probable that the final report will differ from it to any material extent.

PRELIMINARY CONSOLIDATED INCOME STATEMENT

(Including operations of Mt. Shasta Power Corporation)

Year Ended December 31st

	1922	1921	Increase	Decrease
Gross Earnings, including Miscellaneous Income	\$39,204,605	\$37,509,707	\$ 1,694,898	.....
Maintenance, Operating Expenses, Rentals, Taxes (including Federal Taxes) and Reserves for Casualties and Uncollectible Accounts	23,416,876	24,279,085	.....	\$ 862,209
Net Income	\$15,787,729	\$13,230,622	\$ 2,557,107	.....
Net Interest Charges.....	5,148,614	4,797,782	350,832	.....
Balance	\$10,639,115	\$ 8,432,840	\$ 2,206,275	.....
Bond Discount and Expense...	449,757	394,532	55,225	.....
Balance	\$10,189,358	\$ 8,038,308	\$ 2,151,050	.....
Reserve for Depreciation.....	3,602,199	3,069,078	533,121	.....
Balance to Surplus.....	\$ 6,587,159	\$ 4,969,230	\$ 1,617,929	.....
Dividends Paid on Pref. Stock (6%)	2,574,156	2,132,283	441,873	.....
Balance	\$ 4,013,003	\$ 2,836,947	\$ 1,176,056	.....
Dividends Paid on Common Stock	(7½%)* 2,500,407	(5%) 1,700,883	799,524	.....
Surplus Unappropriated	\$ 1,512,596	\$ 1,136,064	\$ 376,532	.....

* Dividends paid on Common Stock in 1922 as follows:

First three quarterly payments at rate of 5% per annum.....	3¾%
Last quarterly payment at rate of 6% per annum.....	1½%
Stock dividend payable in Common Stock.....	2%
Total	7¼%

The Company's investment in plants and properties at December 31, 1922, stood at \$200,250,877, an increase within the year of \$17,554,860. In the past ten years the cost of plant additions and the value of other net tangible assets has increased \$90,665,567. This exceeds by \$54,863,667 the total increase during this ten-year period in the par value of all bonds outstanding, and this balance leaves a margin of \$13,648,394 over and above the par value of all Preferred Stock issued during this period.

In 1912, 25.9% of gross operating revenue was required for annual interest on all outstanding bonds, and in 1922 only 15.3% was required. Ten years ago 61.0% of the Company's net was absorbed in bond interest, as against 38.0% in 1922.

The Company started the new year with 46,295 more customers on its books than it had a year ago, and the year 1923 is starting out even better than 1922, no less than 4,029 having been taken on in January of the current year, compared with 2,263 in January, 1922. The total number of customers served at the close of January, 1923, was 649,293.

Further details respecting the Company's operations will be given when the final report for the year 1922 is presented to stockholders.

WHAT IS A BUSINESS SURPLUS?

The above question is answered in a very clear and understandable way by Mr. George Wheeler Hinman, the well known financial writer, in a recent issue of the "San Francisco Examiner." Excerpts from Mr. Hinman's article follow:

"What is a business surplus? A business surplus is to a business corporation or stock company just what a savings account is to the father of a family.

"It is the money accumulated in times of prosperity to carry the concern through times of adversity; it is the guarantee against poverty or bankruptcy or borrowings at banks to keep going. It is the rainy day fund of business.

"Any business that does not have such a fund is insecure, should not continue to offer its stock at public sale, and cannot inspire the confidence of those who invest their money.

"A Surplus is just as necessary to a corporation owned by 50,000 stockholders as it is to a business owned by two men.

"Where the fortunes of the two men are concerned, few will deny this. Where the fortunes of the 50,000 are at stake, many seem to deny it. Yet in the latter case the reasons for accumulating a surplus are 25,000 times stronger.

"The savings deposits in the United States are supposed to be \$19,000,000,000 just now. Everybody except the anarchist thinks it a fine thing that these private surpluses mount ever higher. Why? Because when hard times come these surpluses make the times less hard for the depositors; because when incomes are reduced or wiped out the savers of these surpluses are not driven to living on borrowed money or going into bankruptcy.

"Let any man apply the same line of reasoning to a stock company and its 50,000 stockholders or owners. He then will see the point."

The Pacific Gas and Electric Company's balance sheet as of December 31, 1922, shows a surplus, in round numbers of \$8,593,000. It represents earnings that might have been paid to the stockholders in dividends except for the wise and prudent policy, the necessity for which is so graphically pointed out by Mr. Hinman, of protecting the investors in the company's securities by "plowing back" into the property each year a reasonable proportion of earnings.

Pacific Service Magazine

PUBLISHED IN THE INTERESTS OF ALL EMPLOYEES OF THE
PACIFIC GAS AND ELECTRIC COMPANY

JOHN A. BRITTON EDITOR-IN-CHIEF
FREDERICK S. MYRTLE MANAGING EDITOR
A. F. HOCKENBEAMER BUSINESS MANAGER
Issued the middle of each month.

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PACIFIC GAS AND ELECTRIC COMPANY
at 445 Sutter Street, San Francisco

The Pacific Gas and Electric Company desires to serve its patrons in the best possible manner. Any consumer not satisfied with his service will confer a favor upon the management by taking the matter up with the district office.

VOL. XIV FEBRUARY, 1923 No. 9

EDITORIAL

As a frontispiece to this number of PACIFIC SERVICE MAGAZINE we present portraits of the two most illustrious Presidents of the United States, both of whom happened to be born in the month of February.

To say that these two men were idealists to a degree is, perhaps, a commonplace. Yet, through ideals of noble character such as they possessed can man alone rise to true greatness. Each, in his way, presents a singular object lesson to readers of history. They were at opposite ends of their country's social organization. Washington was an aristocrat and a man of wealth, while Lincoln was a man of the people and poor. In the one case, pride of birth and riches, which so often prove obstacles in the path of glory, became stepping stones to achievement; in the other, humble origin and poverty served but as splendid spurs to unremitting endeavor. The two Presidents whose natal days the entire country delights to honor in the second month of each year stand out from all others by reason of the fact that, respectively, they guided their country's destinies successfully through the two greatest crises in its life's history.

Humbly and reverently we honor these men; humbly and reverently we draw from the examples they set the inspiration that makes for achievement

of noble ends. Henry Van Dyke spoke inspiring truths when he said:

"Let a man fasten himself to some great idea, some great truth, some noble cause, even in the affairs of this world, and it will send him forward with energy, with steadfastness, with courage.

"This is what Emerson meant when he said: 'Hitch your wagon to a star.'

"These are the potent, the commanding, the enduring men in our history—men like Washington and Lincoln.

"They may fail, they may be defeated, they may perish, but onward moves the cause and their souls go marching on with it; for, they are part of it, they have believed in it."

In a communication to the Babson Institute at Wellesley Hills, Mass., where great minds have been discussing economical and industrial conditions throughout the country, Dr. Charles P. Steinmetz, the distinguished scientist of the General Electric Company at Schenectady, has outlined a plan for a new industrial system designed to bring capital and labor together. In so doing he has given expression in his usual direct fashion to opinions that seem to be worth more than passing notice. Upon the subject of business competition, for instance, he has this to say:

"Wasteful competition is the basic reason for high costs. Cost of production has been reduced by the developing of large units and cutting out of wasteful competition. One reason why the cost of distribution is today so great is because this co-operation is just beginning—through the chain stores—to be applied to distribution.

"There can be no permanent prosperity with industries competing with one another and with a half dozen little shops in every block. There should be more co-operation and less competition. When industry is properly organized and controlled then we will be in a position to eliminate unemployment and business depressions. The trend of capitalism is to bring such a condition about."

Dr. Steinmetz reminds his readers that the leaders in either a capitalistic or a socialistic form of government must

work in the interests of society at large in order to make good. He considers, also, that business men make a great mistake in thinking that socialism means government operation. He says:

"Only the labor leaders and the radical politicians are talking government operation. Neither the intelligent capitalist nor the intelligent socialist wants government operation. Nor do the labor leaders and politicians want government operation for the benefit of the community but rather for their own selfish purposes. Ask any ten men whether private or government operation is more efficient and nine will at once answer that private operation is the more economical. Apparently everything favors public operation—low interest charges, no dividends to pay, no legislation to fear—and yet government, state and municipal operation is a failure. Successful government operation of industries, railroads or public utilities, is inherently impossible under a democratic form of government."

Dr. Steinmetz speaks for all thinking men in this country who have no political axes to grind. Unquestionably the trend of popular opinion today inclines steadily toward private ownership and operation under proper regulation as against municipal or other form of government ownership and operation. Daily comes to us news of some municipally owned and operated electric light and power plant throwing up the sponge on account of inefficient as well as costly operation. Seven cities and towns in Oklahoma have abandoned municipal power plants in the last few months, likewise four towns in eastern Kansas. Concerning these latter the record shows that notwithstanding the high rates charged, in some instances as much as 20 cents per kilowatt, the plants were unable to meet the growing demands for service. Leading business men, city officials and others from each of these towns called a joint meeting to discuss ways and means for providing more capacity and to see if they could not combine and establish a central plant to serve them. At this meeting someone suggested that increased and better service at lower rates could be obtained

by connection to a large privately operated central station plant which served adjacent territory. So anxious were the officials in these four towns to be relieved of the operation of their respective plants that they offered to rehabilitate at their expense their distribution lines and generating plants and then to give them absolutely free to the central station plant company, to pass such franchises as that company might require and, in addition, give a cash bonus to apply on the necessary investment to be made by the central station company in new lines, sub-stations, etc.

Figures taken from the most recent report of the United States Geological Survey show that during the year 1922 California produced 21.9 percent of the total hydro-electric output of the entire country.

The record for California stands at 3,770,376,000 kilowatt hours, while New York State comes second with 2,953,209,000 kilowatt hours. The total for all states of the Union was 17,213,217,000 kilowatt hours.

This is truly a brave showing for our Golden State, particularly considering how small a proportion—something like 3.3 per cent—of the population of the country is credited to her. It is, also, a fact that California leads the Union in the per capita consumption of electric energy.

In this showing our own "Pacific Service" plays no mean part. During the year 1922 the Pacific Gas and Electric Company produced 1,120,811,000 kilowatt hours by water power. This was 29.7 percent of the output of the State and 6.5 percent of the output of the entire country.

NOTICE TO STOCKHOLDERS

It is our policy to regularly mail PACIFIC SERVICE MAGAZINE to all stockholders of the company. Consequently, when two or more of the same family are stockholders a corresponding number of copies are sent to the same street address. If in such instance more than one copy is not desired, we will appreciate a notification to the office of the Third Vice-President and Secretary.

Tidings From Territorial Divisions

East Bay Division

Oakland's great growth industrially shows no signs of falling off in 1923; instead, greater strides are looked for. Eight companies, their products known the country over, have purchased large tracts of land here and will soon commence construction of plants. The following list shows the firms and acreage purchased:

Palmolive Soap Company, 10 acres; Continental Can Company, 15 acres; Libby, McNeill & Libby, 28 acres; Ajax Forge Company, 5 acres; Heinz' 57 Varieties, 5 acres; Westinghouse Company, 12 acres; Gat Engineering Company, $3\frac{1}{2}$ acres; Associated Oil Company, $2\frac{1}{2}$ acres.

These are among the larger concerns ready to start their plants here, many smaller ones being already under way. The industrial world has found that the proper site for every type and kind of manufacturing plant can be found in the East Bay section, and it is using its knowledge to the good advantage of all concerned.

Much of the credit for bringing the advantages of this section to eyes of manufacturers should go to the New Industries' Committee of the Chamber of Commerce, of which Manager L. H. Newbert is a member. Mr. Newbert is a busy man as far as Chamber of Commerce work is concerned, for he is a member of the board of directors, chairman of the finance committee and a member of the trade extension committee.

Mr. L. F. Galbraith, superintendent of our new business department, has been elected president of the Oakland Ad Club for 1923. Mr. Galbraith's good work as treasurer of the club in 1922 was so noticeable that the members

recognized it with promotion to the highest office in their power.

Meetings are now being held in Oakland by a committee from the various civic bodies to put in motion plans for a large annual festival on Lake Merritt, similar to the Ah-Sar-Ben festival at Omaha. An affair such as is planned would call the attention of the entire country to our East Bay city.

While every city in the State has reason to be proud of its 1922 building record, Berkeley is starting 1923 with a building program of which the entire State will take notice.

Five hundred men are employed on the huge stadium at the University grounds, rushing it to completion for the next big game. "Pacific Service," as usual, is doing its part by running a special 11 K. V. line from Ridge station around the foot of the Berkeley hills to the site, delivering 900 horsepower, now used for pumps in hydraulic work.

The new \$150,000 gymnasium at Berkeley High School was thrown open last week. This is a fine brick and concrete building on Milvia street, containing rest rooms, showers, lockers and swimming pool, and has the largest floor space of any building in Berkeley.

Alameda, long noted as a city of homes, is adding industry at a pace in keeping with other East Bay cities.

The Listo Pencil, manufactured here, is adding to its plants and reports a gratifying demand for its products. Selling organizations are established all along the coast and as far east as Chicago, with orders ahead for some months work.

The Baker-Hansen Company, manufacturer of rotary air compressors and vacuum pumps, which opened its plant here a short time ago, has found it necessary to employ many extra men, in-

creasing its payroll to \$10,000 a month. Plans are being drawn for additions to double the capacity of the present plant.

The first apartment house in Alameda is nearing completion at Grand and Central streets. This is an up-to-date house in every way, the building alone costing \$150,000.

The California Salt Company of Alvarado, whose plant was recently destroyed by fire, is already working on plans for a new plant which, when completed, will be the largest and most modern in the world.

The Victory Motor Company of Niles has increased its force from 20 to 90 men, to keep up with the demand for the double valve it manufactures. This valve is being installed by all the oil companies in the State and is the only valve of its kind made.

The southeastern part of Alameda county, rich in the romance of early California history, is now the banner section in fruit and vegetable culture. Large crops of cauliflower and spinach are being harvested and shipped to all parts of the United States.

With the long continued rains, prospects are better for bumper crops than for some years past, and many inquiries are being received for installations of motors for pumping and irrigating for the coming season. E. B. D.

Sacramento Division

The River Farms Company of California is about to plant six hundred acres of peach trees on its 3000-acre ranch in Yolo county, near Knight's Landing.

Three hundred acres will be planted to clings and the other half to free-stones, according to R. H. Geer, ranch manager. The trees are on the ground and as soon as Kerns and Egbert complete the leveling and laying out the land the trees will be planted. This will require 45,000 trees, or 75 to the acre.

The River Farms Company has an orchard of 800 acres in prune and pear trees, and with this additional acreage will have one of the largest orchards in the State. This project is proclaimed as the largest undertaking in the Sacramento Valley and will put Yolo county as a noteworthy competitor with Sutter county in the peach growing business.

The extension of gas mains in the J. C. Carly tract, known as the South Oak subdivision No. 2, is to be put under way. Mr. Carly, who is about to build a home for himself there, states that he will start seven new houses on the tract.

The mains extended will serve thirty-two lots.

To meet the demand for further power service from the Sacramento Lumber Company and the Sacramento Cabinet Company, whose custom has been steadily increasing until it has reached two hundred sixty horsepower, new transformers will be installed. Division Manager Florence reports that the increase in building activities is quite noticeable and is keeping his service crews working up to the maximum.

S. D.

North Bay Division

The gas appliance dealers of North Bay Division, realizing the advantage of co-operation, have organized three units of the Gas Appliance Society. The first unit was organized at Santa Rosa, and included the dealers of Petaluma, Sebastopol and Santa Rosa. The Marin county unit includes all the dealers of Marin county. Napa and Vallejo dealers comprise the third unit.

During the past year the dealers have been gradually absorbing the appliance business formerly handled by the company, and it is expected that through the efforts of the society all the domestic appliance business will be taken over by the local dealers. The company will assist in sales effort by education, advertising and demonstration.

Santa Rosa district gross receipts from sales of gas and electricity in December, 1922, were over double the amount for December, 1918, an average increase of over 25 percent per year.

Pipe and fittings for a gas main extension on Carr avenue, Humboldt and Spear streets have arrived at Santa Rosa. This work will open a new, rapidly growing section to "Pacific Service" and will serve twenty-four applicants.

An interesting fact concerning the employees of this division was brought out when the new employment cards were recently signed and sent in to headquarters. Of the 350 employees 81 are from 19 foreign countries, 106 natives of 30 States outside of California and 163 are native Californians.

Work will be started shortly upon an extension of power lines to supply fifteen horsepower in motors at the A. B. Spreckels ranch, two miles south of Napa, according to word received from Mr. C. D. Clark, local district manager.

Mr. Clark also reports that several lightning arresters will be installed on the local power lines to prevent interruption in service. W. E. S.

Fresno Division

From a whistling post in 1872, on a desert of sagebrush and sand, with no past and anticipating no future, Fresno today has 70,000 inhabitants, according to figures lately compiled by the Postal Department. Its continued growth for 1923 is assured, for already January shows over a million dollars in building permits. Rapid growth is shown in the outskirts of Fresno, where Mr. Joseph King, Fresno realtor, is one of the most active subdividers.

The erection of 332 homes in Greater Fresno on lots, most of which two years ago were devoted to grape vines, is the record of Mr. King, who came to Fresno 21 months ago with his wife and father. Mr. King has disposed of seven subdivisions northeast of Fresno since

his arrival, which is regarded as a remarkable instance of grasping opportunities.

The King family came to Fresno from Kenosha, Wisconsin, by automobile, in April, 1921. Mr. King and Mrs. King signed a note for their first capital, which launched them in the subdivision business. Their first Fresno home was an 8x12 building, which also served as their office. Mrs. King has taken an active part in the business from the start, and Mr. King attributes much of his success to her. Today Mr. and Mrs. King occupy a beautiful bungalow of their own, which is equipped with the most modern conveniences and fixtures. The site for the home is King's Orange Manor, where they have three and a half acres, including an orange grove and a poultry and pigeon farm.

The tracts which King has handled, totaling 120 acres of home sites, are: Avalon Heights, between Ninth and Twelfth, and Belmont and Washington. Thirty acres. Mrs. Kittie B. Campbell, owner. King's Orange Manor, between Tyler and Olive, Orchard and Angus. Eight acres. S. B. Goodman, owner. Lincoln Terrace, between Olive and Harvey, First and Bond. Forty acres. S. B. Goodman, owner. Crawford Park, between Tyler and Harvey, Eighth and Ninth. Ten acres. Bruce W. Large, owner. Arlington Tract, between Harvey and Lewis, Eighth and Ninth. S. B. Goodman, owner. Lamona Land Tract, now on the market. P. W. Lamona owner.

Fig bread, experimented with for the past two years in the laboratories of the California Peach and Fig Growers' Association, is to be introduced throughout the United States. E. S. Moorehead, general sales manager of the association, has been commissioned to introduce the product to the public. He left Fresno recently for New York and other eastern cities, where the "Fig Health Loaf" will first be placed on the market.

"Figs are healthful and contain the greatest amount of mineral values," states Moorehouse, "and it is our purpose to interest some one baking firm

in each city in the manufacture of fig bread. All of our national advertising will tend toward the introduction of fig bread to the housewife upon recognized food value statistics."

Mr. Moorehouse attended the National Convention of Food Brokers of the United States at Atlantic City, N. J., held January 22 to 25, and at which there was a display of American canned products. "For the first time in the history of the fig industry, California fig products in cans were displayed," said Mr. Moorehouse, "while the fig bread idea was conveyed to the delegates through attractive literature telling of its food value."

Co-operative financing by the people of the San Joaquin valley for valley investments is a new business venture which was launched recently by Fred B. Billings and R. G. Meyering, with the organization of the San Joaquin Finance Corporation, having an authorized capital of one million dollars. The financing corporation will extend its activities to the purchase of real estate mortgages and notes, contracts, installment lien paper, trade acceptances and commercial drafts. This is expected to be a great stimulus to business activities in the valley.

Billings is president of the new finance corporation and Meyering is vice-president. Billings and Meyering, who are subdividers and builders, erected more than two hundred homes in the valley last year and expect to greatly increase the number of homes this year. Among the divisions which they are handling are Alta Vista and Sierra Vista in Fresno.

J. H. Onstad, who has had many years' experience in financing companies, has been chosen director of the new corporation, and S. S. Champlain is secretary and treasurer. E. J. Fentermasher is general counsel.

The corporation will issue ten thousand shares of preferred stock at a fixed price and twenty thousand shares of common stock, Secretary Champlain stated. All shares, he said, would be fully paid and non-assessable. Two

shares of common stock will be given with the purchase of each share of the preferred stock. The corporation is organized under the laws of Delaware.
H. G. R.

Shasta Division

The Uncle Sam Mining Company has contracted for electric service to operate an initial installation of 55 H. P. at its holdings eleven miles northwest of Kennett in the most productive copper district in Shasta Division.

Preliminary operation is to be confined mainly to exploration and development work. This reopening marks the first activity in the Kennett district since the shut-down which occurred in May, 1918, because of labor troubles. With the development work well under way, the program of the Uncle Sam Company calls for added load facilities and actual mining operations. Indications point toward renewed activities throughout the entire district in the near future.

Negotiations are under way for the construction of a substation at Igo, to serve the California Bi-Metallic Corporation. The first unit to be installed by the mining company will consist of motors aggregating 100 H.P., a second unit of 100 H.P. to be added in early spring.

The extension entails the erection of approximately four miles of 20 K. V. line and a substation equipped with three 75 K. W. transformers. Operations will consist of mining and milling at the one location. The motor equipment installed will be served at 2200 and 220 volts.

In addition to the reopening of the copper mines in Shasta Division during the month of January, "Pacific Service" placed the Valdora substation in operation to supply the Lewiston Dredging Company with 405 H. P. at its dredger on the Trinity River.

The installation consists of three 150 K. W. transformers, fed from a 60 K. V. line. The dredger operates at 2200 volts. Dredging operations over the five-mile

lease began January 9, and it is estimated that the "Valdora" will operate for a period of ten years in covering the holdings of the Lewiston Company. This latest addition in the gold dredging field brings the total load up to approximately 1500 H.P. for the three companies operating in a ten-mile stretch on the Trinity. Operating on the same line are two other dredges, the "Trinity" and the "Gardella," both of approximately the same capacity as the "Valdora."

Six hundred feet of three and four-inch steel pipe is being laid by our company in an industrial extension for the I. J. Johnson Iron Works. The line, which leaves the main at California and Sacramento streets, is large enough to supply the entire plant with gas. At present the gas will be used only on the crucibles for melting brass, copper and bronze. The capacity of the mill will be considerably increased on account of the gas furnaces, as each of the three 280-pound capacity crucibles will be emptied four times daily, thus increasing the output of the works to about a ton a day.

Later on the entire plant will use "Pacific Service." The changes have been necessitated by the increased volume of business which the iron works has been doing. In the past two months, according to I. J. Johnson, owner of the plant, two tons of bronze alone has been taken off from the crucibles.

G. R. M.

San Jose Division

The Homer Knowles Pottery, near Santa Clara, has commenced operations with an initial load aggregating 115 horsepower, for which a new 11 KV line was built along the Santa Clara-Alviso Road. This plant will specialize on hotel pottery.

A new 12-family apartment house, equipped entirely with electric cooking, water heating and room heating appliances, has been connected to our lines at 260 North 3rd Street, San Jose. Mr. J. C. Bondi, the owner, has carried out

the latest ideas in comfort, cleanliness and convenience. The equipment totals 143 kilowatts.

Our gas-heating department has installed for Mr. Floyd V. Weaver a gas-fired steam boiler for the heating plant at his new Mojmia Apartments, 470 South 3rd Street, San Jose. A careful comparison of various types of fuels convinced him of the superiority of gas-fired equipment recommended by us.

Modern street lighting is exemplified by the new electroliers recently installed on E. San Fernando Street and on South 2nd Street in the business district of San Jose. Attractive cast-iron posts support the 200 watt Mazda units.

Increase of the general load supplied from the 4 KV portion of the Mountain View substation has made it necessary to install an additional outgoing 4 KV circuit, with single phase regulators, having an aggregate capacity of 1000 kilowatts.

Several gas-heating equipments are being installed for new buildings in San Jose, using the company's Rector System.

The second get-together meeting of the electric distribution department was held at the Commercial Club, San Jose, on Wednesday evening, January 31st. About twenty-five members of the department were present, including also Mr. F. G. Maynard and eight members of the transmission department. Mr. H. H. Buell, superintendent of electric distribution, acted as host.

Following the dinner, Mr. Buell rose to introduce as general foreman Mr. E. D. Burkhead, who has been one of the line foremen for a number of years. Mr. Maynard also announced the appointment of Mr. Bert Parker to the automobile department. Several points of the State law relating to automobiles as affecting those company owned were discussed, a recent letter of the Division Manager on this subject read, and also extracts from Mr. Shaw's re-

port. San Jose division's rolling stock will soon be the snappiest and most efficient in the system. Other points of interest brought up related to such matters as crossarms, sketches on work orders and clerical data thereon, and the foremen were invited to make themselves acquainted with the various records kept at the office to further the efficiency of the department as a whole.

We feel that a great deal of good is being done by these meetings.

F. J. S.

De Sabla Division

The \$25,000 appropriation by the State for the purchase of the Bidwell mansion grounds for use by the Chico State Teachers' College, has been included in Governor Richardson's budget.

The Bidwell mansion and surrounding grounds were purchased last summer from the Presbyterian Council by the Normal Extension Committee of the Chamber of Commerce. The mansion will ultimately be used as a conservatory of music and an art library and museum.

The college has shown a growth in enrollment every year and the time is not far distant when every bit of available space will be needed.

Plans and specifications for Chico's new \$200,000 First National Bank building, to be erected at the corner of Third and Main streets, have been finally accepted by the board of directors of the institution.

As adopted, the specifications call for a four-story building, the entire lower floor to be occupied by the banking rooms, president's office and the directors' rooms, while the three upper stories will be divided into suites and single office rooms.

The building will be erected in keeping with the latest types of architecture. In equipping the banking rooms the latest styles of banking equipment will be installed, as will be the case in the office suites, where only the best and most modern conveniences will be placed.

Chico may have a new type of tourist hotel if the plans of Bert E. Hilborn, who appeared before the directors of the Chico Chamber of Commerce, materialize.

Hilborn is general manager of the National Auto Tourists' Hotel corporation, and told of the plan to establish a chain of the new model tourists' hotels up and down the Pacific Coast. He proposes to construct the building with the aid of community effort, and expects to see twenty of them established on the coast and operated on the chain idea.

Chico may have an olive plant to handle the pack from northern Butte county and the nearby communities on the west side of the Sacramento river, if a survey of the district reveals sufficient tonnage to warrant the establishment of a canning concern here, according to T. H. Richards, representative of the Placer County Growers' Canning Association.

The first carload of processed olives to leave Chico was shipped recently to San Francisco by A. E. Crist, on the Humboldt road. Richards has been directing the work at the Crist plant and declares that he has come in contact with several other growers and believes there is sufficient output to warrant a close investigation of the field with the view to establishing a co-operative cannery.

I. B. A.

San Joaquin Division

A phenomenally rich gold strike on the Casa Madera Mining Company's property is being reported, and from the very little definite information available mining men generally consider that the strike is one of the greatest in the history of Tuolumne county quartz mining and is destined to yield millions of dollars worth of gold. The Casa Madera Mine is located in what is known as the Basin District, south of Confidence, and east of the north fork of the Tuolumne River. The location is difficult of access. The work of uncovering the ledge so far has demonstrated that it is about 100 feet wide

and approximately 500 feet of its length has been exposed. Assay values obtained give from \$10 to \$2,000 per ton. The mining industry as a whole is quite jubilant over the reports of the find.

Hughson, a town of about 500 population and located in Stanislaus County on the main line of the Santa Fe Railroad, boasts of a present \$50,000 building boom. Hughson is the home of the Hughson Condensed and Powdered Milk Company, which industry has a working force of about fifty men. The condensary is now paying to the farmers in that vicinity \$60,000 per month for milk, and has more than done its share to make Hughson a prosperous little community.

Oakdale, Stanislaus County, sometimes known as the gateway to the great Mother Lode mining country and to the vast timber land of the Sierras, reports that the postal receipts for 1922 amounted to close to \$13,000, showing a substantial increase over the previous year and a total sufficient to insure free mail delivery. Oakdale is a city of about 2,500 population and in view of the general depression in farming communities over the State, the showing is considered unusually good.

A refrigerator car icing station is to be established in Stockton by the newly organized western refrigerator line. Construction of the plant is expected to be started soon in order that it may be completed before the next summer fruit season.

Modesto can pride itself in claiming the creamery that has the greatest output of butter of any plant in the United States. This fact has been brought out following the annual report of the Milk Producers' Association of Central California. The Modesto plant, famous for its "Modesto butter," produced 3,833,733 lbs. of butter in 1922, or a gain of 607,866 lbs. over the previous year. The Lucerne Creamery at Hanford is second in California and follows the Modesto plant within about 100,000 lbs. of butter.

The City of Turlock, in completing its 1922 building program, reports that the building activities of that city have reached the half-million dollar mark, this figure surpassing the 1921 total by close to \$50,000. This expenditure within the city limits includes 79 new residences, as well as various other improvements. It is estimated that at the close of the year 1922 the population of the "Melon City" was close to 5,000 persons.

Patterson, a thriving community located 18 miles west of Modesto, is at present attracting the attention of the dairymen of the State by the extraordinary record being made by the famous Holstein, "Fairmont Colantha Prilly," the three-quarter sister of the famous "King Segis Alcartra Prilly," the dam of "King Mead Colantha Prilly," the present herd sire at the Bridgeford Holstein Company farm at Patterson. This junior three-year-old has 600 pounds of butter to her credit in the first sixty days of her yearly test. The entire West Side, including Newman and Patterson, is famous for its thoroughbred stock.

The enterprising little City of Riverbank will have a \$50,000 cannery because of the efforts of about fifty farmers and business men who have financed the building of the plant for the express purpose of canning vegetables and fruit grown in that vicinity. It is anticipated that the plant will be in operation by May 1, at which time the spinach crop will be ready for canning.

The Home Ice and Cold Storage Company of Turlock has started the construction of its \$35,000 ice manufacturing plant in that city. The new plant, when completed, will have a capacity of 25 tons of ice per day, and cold storage facilities to take care of the present demand. Present progress of construction indicates that this plant will be in operation by April 1, 1923.

The Stanislaus County Board of Supervisors has recently awarded contracts for the construction of 31½ miles of highway between Oakdale and Esca-

lon, and $7\frac{1}{2}$ miles between Newman and Westley, at a total cost of over \$200,000. The H. M. Ball Company was awarded the contract for the Newman-Westley Highway, while Tiechert & Son were the successful bidders for the Oakdale-Escalon highway.

Postal receipts in Stockton for 1922 were the largest of any year in the history of that city. The total for the year was \$256,319, which figure represents a gain over 1921 of 6 per cent. That the Postoffice Department recognizes the splendid growth and the need for more room at the local office is shown by the fact that Stockton is one of the group of a few cities which have received favorable recommendation for building appropriations. The department proposes to expend \$180,000 in enlargement of the office, which will give three times the floor space of the present building.

One of the largest land transactions on record in this section was recently consummated with the selling of the Elliott ranch, comprising approximately 5,000 acres, and located near the junction of the Stanislaus river with the San Joaquin and west of Manteca. It is one of the largest single holdings in the San Joaquin Valley. It has been sold to Koonyman Brothers of Tulare County for a reported amount of \$300,000.

The Turlock Women's Club prides itself on having been awarded fourth prize of \$25 for having one of the best demonstration houses in the 1922 "Better Homes in America" Campaign. Nine hundred and sixty-one communities observed "Better Homes" Week, and Herbert Hoover, in awarding the prize to Turlock, complimented the women in charge of the demonstration for several new features developed by the imagination and initiative of the committees. "Pacific Service" featured the necessary electric domestic appliances which make for better homes. L. J. N.

San Francisco Division

New Business Activities

January proved to be a busy month and there seems to be no let up in the building activity, as we note from the following report of business signed up for "Pacific Service."

S. W. corner Hyde and Greenwich, ten-story concrete and steel apartment house, erected by Mr. Martin of the firm of Madison & Burke. This building is being erected on high ground and occupies the position of being the highest building in San Francisco. It is equipped with two elevators and a steam heating plant. 26 HP in motors and 15 Kws. in light is our load record for this building.

At 1079 O'Farrell Street, a four-story apartment house of twelve two-room apartments was erected. This building is equipped to heat its hot water by gas and is also heating the apartments by Radiantfires, one being installed in each apartment. Mr. Hind is a strong advocate for gas. Total load, 10 Kw. light.

Chanslor & Lyon have added 20 HP to their new building at 740 Polk Street, 10 HP to be used in the printing shop, which is a new department, and the balance is to be used in a grinding department.

Another addition to the lines of the company was a twelve two-room apartment house located at 2500 Van Ness Avenue. This building is to be in charge of two progressive young ladies, Miss Clara B. Seaman and Miss Clara Tyler. 15 Kw. lights.

Electric welding is gradually increasing, a 10 HP electric welder being added to the lines at 506 Gough Street.

Our Creative Department reports active work in heating, flood lighting and in the electric ranges.

The Chester N. Weaver Company has completed its installation of electric heating, placing a total load of 190 Kw.

on the Company's lines in heating its entire building electrically. In addition to this it has installed three banks of flood lights projectors, three to the bank, each projector having a 500 watt lamp, or a total load of 4.5 Kw. The flood lights were placed on a roof of a one-story building across the street, making a throw of 105 feet. Our illuminating engineer has recommended a change of this installation from 500 watt lamps to larger units to obtain a better effect as the extreme corners of the buildings have a slight shade which could be eliminated by the use of a larger lamp.

L. S. Sherman, 2160 Green Street, placed in his residence 60 Kw. in heating.

The Durkee-Thomas Company, 1238 Folsom Street, made an installation of 92 HP. for battery charging.

The McKenna Mill Company, 231 Berry Street, installed 155 HP. for planing mill purposes.

In the Gas Department good work has been done in connection with the use of industrial gas.

The Sunset Carpet Cleaning Company, 564 Eddy Street, installed a 15 HP. Kane boiler for use in connection with the cleaning of carpets, they requiring high-pressure steam for this work.

The Variety Rubber Company, 100 Embarcadero, installed a 3 HP. Eclipse boiler.

Mission Paper Board Company, 1104 Bryant Street, made a complete installation for dry room purposes.

Shriners Hospital, 19th and Sloat Blvd., installed gas for shop purposes, utilizing same for forge work.

Tyre Bros., 668 Townsend Street, installed a 10 HP. Kane boiler.

Superior Candy Company, 3021 Sacramento Street, installed a 2 HP. boiler to be used in connection with the manufacture of candy.

Quality Bakery installed a bake oven.

Young's Market, 1810 Polk Street, installed a bake oven.

Ferger's, 1443 48th Avenue, installed a bake oven.

Alfonso Faldetta, 3204 Folsom Street, bake oven. F. T.

Electric Distribution Notes

Two 1000 K.W. rotaries are now being installed at Station "C" to handle the rapidly increasing load of the Municipal Railway system.

New 4 K.V. and 11 K.V. bus structures have been installed in the recently built addition to Station "G" at Ellis and Broderick Streets. This additional apparatus will facilitate the changing of the 2-phase service in that district to 3-phase.

A new 400,000 C.M. 11 K.V. feeder has recently been put in service between Station "I" and Station "G," and another feeder of similar capacity from Station "G" to Station "K" has been installed and will be put in service shortly.

All of the old type K 11 K.V. oil switches in Station "I" are being replaced with H3 oil switches. As the new switches have a larger rupturing capacity than the old type, the change will minimize interruptions to service.

The amusement concession known as the "Chutes-at-the-Beach" has increased its electric load 150 H.P.

The necessary transformers, etc., are now being installed at the Marine Hospital to take care of the electric service for the fire pumps and the laundry equipment.

It is proposed to reconstruct the lighting system on Valencia Street, from Market Street to Mission Street. When the work is complete there will be a 600 M.R. light on every trolley pole on Valencia Street.

It is proposed to install a 50 K.W. transformer and increase the size of our secondaries and D.C. mains on Mission Street, between Beale and Fremont, to take care of an additional load of 130 H.P. at the enlarged building of W. P. Fuller & Company, the pioneer paint manufacturers.

The Steam Distribution Department has finished the installation of 165 feet of 3-inch steam main on Sutter Street, between Mason and Taylor Streets, and 165 feet of 4-inch steam main on Pine Street, between Mason and Powell Streets.

Pacific Gas and Electric Company Furnishes "PACIFIC SERVICE"

TO OVER 645,000 CONSUMERS OF

GAS (ELECTRICITY) WATER (STREET RAILWAY)

1,715,959 Total Population Served in Thirty-six of California's Counties

CITIES AND TOWNS SERVED BY COMPANY

DIRECTLY			INDIRECTLY			TOTAL	
	No.	POPULATION		No.	POPULATION	No.	POPULATION
Electricity.....	170	1,117,541	61	156,411	231	1,273,952	
Gas.....	61	1,134,687	2	8,600	63	1,143,287	
Water (Domestic).....	18	61,719	8	15,488	26	77,207	
Railway.....	1	65,908			1	65,908	

Place	Population	Place	Population	Place	Population	Place	Population
¹ Alameda.....	28,806	¹ El Verano.....	400	¹ Meridian.....	200	¹ San Leandro....	5,703
¹ Albany.....	2,462	¹ Emeryville.....	2,390	¹ Millbrae.....	300	¹ San Lorenzo....	500
¹ Alvarado.....	1,000	¹ Escalon.....	600	¹ Mills.....	400	¹ San Martin.....	250
¹ Alviso.....	517	¹ Esparto.....	200	¹ Mill Valley.....	2,554	¹ San Mateo.....	5,979
¹ Amador City.....	377	¹ Fairfax.....	250	¹ Milpitas.....	300	¹ San Pablo.....	500
¹ Anderson.....	750	¹ Fairfield.....	1,008	¹ Mission San		¹ San Quentin....	3,000
¹ Angel Island.....	500	¹ Fair Oaks.....	300	¹ Jose.....	500	¹ San Rafael.....	5,512
¹ Antioch.....	1,936	¹ Fall River Mills	300	¹ Modesto.....	9,241	¹ Santa Clara....	5,220
¹ Aptos.....	300	¹ Farmington.....	300	¹ Mokelumne Hill	900	¹ Santa Cruz.....	10,917
¹ Arbuckle.....	900	¹ Felton.....	300	¹ Monterey.....	5,479	¹ Santa Rosa....	8,758
¹ Atherton.....	500	¹ Folsom.....	2,000	¹ Morgan Hill....	646	¹ Saratoga.....	500
¹ Auburn.....	2,289	¹ Forestville.....	250	¹ Mountain View..	1,888	¹ Sausalito.....	2,790
¹ Barber.....	500	¹ Fresno.....	45,086	¹ Mt. Eden.....	200	¹ Sebastopol.....	1,493
¹ Belmont.....	375	¹ Gilroy.....	2,862	¹ Napa.....	6,757	¹ Shasta.....	200
¹ Belvedere.....	616	¹ Glen Ellen.....	1,000	¹ Nevada City....	1,782	¹ Shellville.....	200
¹ Benicia.....	2,693	¹ Gonzales.....	500	¹ Newark.....	500	¹ Sheridan.....	250
¹ Ben Lomond.....	400	¹ Grass Valley....	4,006	¹ Newcastle.....	750	¹ Smartsville.....	300
¹ Berkeley.....	56,036	¹ Gridley.....	1,636	¹ Newman.....	1,251	¹ Soledad.....	400
¹ Biggs.....	683	¹ Grimes.....	500	¹ Niles.....	1,000	¹ Sutter Clara....	500
¹ Bolinas.....	200	¹ Groveland.....	500	¹ Novato.....	400	¹ Sonoma.....	801
¹ Brentwood.....	400	¹ Guerneville.....	800	¹ Oakdale.....	1,745	¹ Sonoma.....	1,684
¹ Broderick.....	700	¹ Hamilton City..	250	¹ Oakland.....	216,261	¹ South San.....	
¹ Burlingame.....	4,107	¹ Hammoncton.....	500	¹ Oakley.....	200	¹ Francisco.....	4,411
¹ Byron.....	350	¹ Hayward.....	3,487	¹ Occidental.....	600	¹ Standard.....	500
¹ Campbell.....	600	¹ Hercules.....	373	¹ Orland.....	1,582	¹ Standard Uni-	
¹ Capitola.....	300	¹ Hillsborough....	931	¹ Oroville.....	3,340	¹ versity.....	2,700
¹ Carmel.....	638	¹ Hollister.....	2,781	¹ Pacheco.....	300	¹ Stockton.....	40,296
¹ Cement.....	1,000	¹ Honcut.....	500	¹ Pacific Grove... 2,974		¹ Suisun.....	769
¹ Centerville.....	1,000	¹ Hughson.....	250	¹ Paradise.....	5,900	¹ Sunol.....	350
¹ Ceres.....	637	¹ Irvington.....	1,000	¹ Paraiso.....	500	¹ Sunnyvale.....	1,675
¹ Chico.....	9,339	¹ Jackson.....	1,601	¹ Patterson.....	694	¹ Sutter City.....	250
¹ Colfax.....	573	¹ Jamestown.....	750	¹ Penn Grove.....	200	¹ Sutter Creek....	920
¹ College City....	250	¹ Kennett.....	464	¹ Penryn.....	250	¹ Tehama City....	196
¹ Collinsville....	200	¹ Kentfield.....	500	¹ Perkins.....	300	¹ Tiburon.....	400
¹ Colma.....	1,500	¹ Kenwood.....	300	¹ Petaluma.....	6,226	¹ Tracy.....	2,450
¹ Columbia.....	200	¹ Keswick.....	200	¹ Piedmont.....	4,282	¹ Tres Pinos.....	300
¹ Colusa.....	1,846	¹ King City.....	1,048	¹ Pike City.....	200	¹ Tuolumne.....	1,500
¹ Concord.....	912	¹ Knights Ferry..	200	¹ Pinole.....	967	¹ Turlock.....	3,394
¹ Cordelia.....	300	¹ Knights Land-		¹ Pittsburg.....	4,715	¹ Vacaville.....	1,254
¹ Corning.....	1,449	¹ ing.....	400	¹ Pleasanton.....	991	¹ Vallejo.....	21,107
¹ Corte Madera..	607	¹ La Grange.....	200	¹ Port Costa.....	900	¹ Vina.....	300
¹ Cotati.....	200	¹ Larkspur.....	612	¹ Princeton.....	300	¹ Vineburg.....	200
¹ Cottonwood.....	500	¹ Lathrop.....	600	¹ Red Bluff.....	3,104	¹ Walnut Creek..	538
¹ Coyote.....	200	¹ Lewiston.....	200	¹ Redding.....	2,962	¹ Warm Springs..	200
¹ Crockett.....	1,500	¹ Lincoln.....	1,325	¹ Redwood City..	4,020	¹ Waterford.....	250
¹ Crow's Landing.	300	¹ Live Oak.....	300	¹ Richmond.....	16,843	¹ Watsonville... 5,013	
¹ Daly City.....	3,779	¹ Livermore.....	1,916	¹ Rio Vista.....	1,104	¹ Wheatland.....	435
¹ Danville.....	400	¹ Lomita Park....	600	¹ Ripon.....	500	¹ Williams.....	650
¹ Davenport.....	300	¹ Loomis.....	500	¹ Riverbank.....	200	¹ Willows.....	2,190
¹ Davis.....	939	¹ Los Altos.....	500	¹ Rocklin.....	643	¹ Winters.....	903
¹ Decoto.....	300	¹ Los Gatos.....	2,317	¹ Rodeo.....	300	¹ Woodland.....	4,147
¹ Del Monte.....	300	¹ Los Molinos....	200	¹ Roseville.....	4,477	¹ Woodside.....	300
¹ Denair.....	200	¹ Madison.....	300	¹ Ross.....	727	¹ Yolo.....	350
¹ Dixon.....	926	¹ Manteca.....	1,286	¹ Sacramento.....	65,908	¹ Yuba City.....	1,708
¹ Drytown.....	200	¹ Mare Island....	600	¹ Salinas.....	4,308		
¹ Duncan's Mills.	200	¹ Martinez.....	3,858	¹ San Andreas....	1,183	Total Cities ¹	
¹ Durham.....	250	¹ Marysville.....	3,461	¹ San Anselmo....	2,475	and Towns....	1,347,844
¹ Dutch Flat.....	750	¹ Maxwell.....	500	¹ San Bruno.....	1,562	Add Suburban	
¹ Eldridge.....	500	¹ Mayfield.....	1,127	¹ San Francisco..	506,676	Population....	368,115
¹ El Cerrito.....	1,505	¹ Menlo Park.....	900	¹ San Jose.....	39,642	Total Popula-	
¹ Elmira.....	350			¹ San Juan.....	350	tion Served... 1,715,959	

Unmarked—Electricity only. 1—Gas, Electricity and Water. 4—Electricity supplied through other companies.
 1—Gas only. 2—Gas and Electricity. 5—Gas, Elect. and St. Railways. 7—Gas supplied through other companies.
 2—Gas and Electricity. 6—Electricity and Water. 8—Water supplied through other companies.

"PACIFIC SERVICE FACTS"

As of December 31, 1922

SERVES

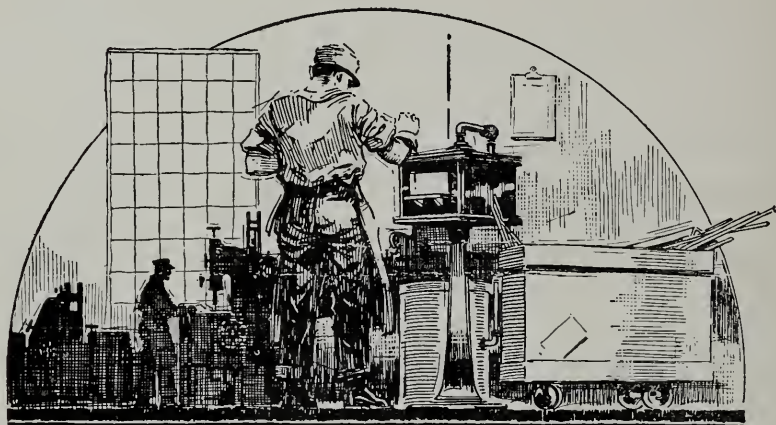
311,469 Electric Consumers
 316,268 Gas Consumers
 16,985 Water Consumers
 542 Steam Consumers

645,264 TOTAL All Consumers

OPERATES

28 Hydro Electric Plants
 4 Steam Electric Plants
 18 Gas Plants
 5 Water Pumping Plants

55 TOTAL All Plants



Gas is Unrivalled as an Industrial Fuel

NO fuel approaches Gas in its advantages for all heat-treating processes in industrial plants.

Visit the industrial gas laboratory maintained by this Company at 241 Stevenson St., San Francisco. It contains all appliances used in factory and home and is maintained for the benefit of our patrons. Builders, architects, engineers and the public in general should avail themselves of this phase of "Pacific Service."



Gas Sales Department

PACIFIC GAS AND ELECTRIC COMPANY

P. G. *and* E.

"PACIFIC SERVICE"

PACIFIC SERVICE MAGAZINE

PUBLISHED MONTHLY BY THE PACIFIC GAS AND ELECTRIC CO. SAN FRANCISCO



BEAR CREEK ON LINE OF PIT RAILROAD

Vol
14

MARCH 1923

No
10

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Pacific Service Magazine

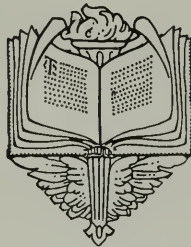
Volume XIV



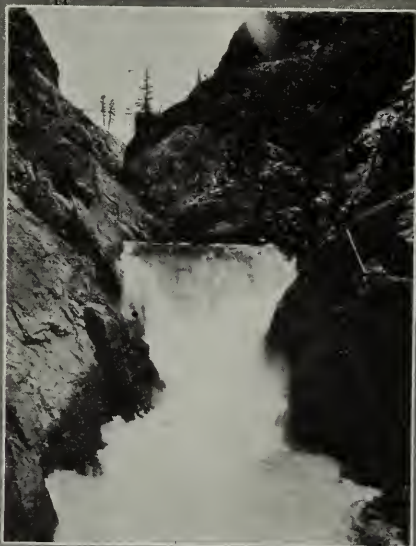
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In our company's South Yuba system plans are under way for improvements of water and power service. In the upper corner, at left, is Lake Fordyce, whose dam is to be raised 47 feet; at right is a view of the Cisco trail from Lookout mountain; at left center, intake of South Yuba canal below Lake Spanlding; at right, Alta power-house; at lower left, Lake Alta; at lower right, Lake Arthur.

Extending Gas Service by High-Pressure System Over the Marin Peninsula

By R. S. FULLER, Engineer of Distribution, Department of Gas Construction and Operation

Recent developments in the high-pressure distribution of gas have brought joy to residents of communities that had never before experienced the comforts of gas service for cooking and heating. In Marin county, while nearby towns, such as San Anselmo and Ross, were first served with this valuable commodity from the central plant at San Rafael nearly twelve years ago, it was some years later that extensions were made to take in the adjacent communities of Larkspur and Corte Madera. Then came the problems presented, severally, by Mill Valley and Sausalito, separated from each other as well as from the nearest gas-main extension by several miles of open territory. The problem that concerned the gas company, of course, was one of capital investment and prospective return thereupon, and for a long while it was not found practicable to bridge, so to speak, the unproductive gaps that separated the communities named from the central point of manufacture.

Of late, however, great strides have been made in high-pressure distribution, so much so that the small local gas-works threatens to become a thing of the past, discarded in favor of high-pressure service from the nearest important works. And so it comes that the inhabitants of two of Marin's most popular residence communities, Mill Valley and Sausalito, are today joyfully celebrating the advent of gas service into their midst. Other extensions are under consideration, taking in still longer stretches of territory.

EDITOR PACIFIC SERVICE MAGAZINE

In the year 1903, when the gas plant at San Rafael commenced the manufacture of gas from California crude oil, all gas sent out was distributed at low pressure, not to exceed three ounces per square inch or, to use the usual term, about five to six inches water column. This was made possible as well as advisable for the reason that the system was compact and covered little territory.

For the next seven years, or until 1910, the only growth of the distribution system in San Rafael was in the town itself and but a short distance from the plant, which necessitated no change in the pressure maintained; but in 1910 a start was made to lay mains and serve gas to neighboring towns. First, a main was laid to supply residents in the town of San Anselmo, immediately to the north; this extension was of such a length in comparison to the longest runs of pipe in the town of San Rafael, as to render imperative carrying a higher pressure at the gas works. Accordingly, the new system was made—what we term high pressure, at a few pounds per square inch. During the same year the system was extended to the town of Ross,

just south of San Anselmo. From Ross to Kentfield was but a step farther, and the extension to the latter town was made the following year, 1911.

As the demand for gas in the towns on this high pressure system grew, it was necessary to continually increase the initial pressure at the gas works in San Rafael, in order to maintain a pressure at the various consumers' services which would insure satisfactory service. To eliminate somewhat the necessity for more of a raise in pressure, a short piece of six-inch line was laid in the town of San Rafael from the gas works to Taylor and C streets. This work was done in 1915 and was to serve later as an important link in the high-pressure system as more development took place.

From the end of the distribution system in 1911 at Kentfield to the next town, Larkspur, was a distance of almost two miles. This stretch of country between the two towns was practically at that time, and is today to a certain extent, uninhabited, and so not productive of any business. For this reason the progress of the gas lines further south was halted for several years, and it was

not until the year 1916 that the mains were run south to serve the residents of Larkspur. At this time, however, when the extension was finally made, more serious study was given to the problem of gas supply to this part of Marin County and it was realized that, basing estimates for future business on actual experience in San Anselmo, Ross and Kentfield, a main as small as two-inch, even though delivering gas at high pressure, could not be depended upon if proper service were to be maintained. In accordance with this decision, when the extension from Kentfield to Larkspur was made four-inch pipe, which has more than four times the capacity of two-inch pipe was laid.

It was not expected that this system, which had been gradually built up from the start in 1910, would be supplied solely from the two-inch main from San Rafael via San Anselmo, a distance of approximately three and one-half miles from the gas works to the beginning of the four-inch main in Kentfield. In 1917 four-inch pipe sufficient to run a line from the San Rafael plant by a direct line of but two miles in length as against three and one-half was purchased and delivered on the ground, but it was

taken away before the job could be commenced and laid at Camp Fremont in order to give gas service to the army cantonment there. Two more years elapsed before the four-inch line was actually laid. When this was done it was found to be possible to decrease the pressure at the plant more than fifty per cent, which made for better efficiency as well as ease of operation.

During the year 1919 the residents of the extreme southern end of Marin County, in Mill Valley and Sausalito, as well as those in the town of Corte Madera adjacent to Larkspur, urgently requested that they be given gas service. A detailed survey was made by our company's gas department to determine the possibilities, but by this time costs of both labor and material had risen to such an extent that the investment necessary would have been prohibitive. From Larkspur, where the line ended in 1919, to Mill Valley was a distance of nearly four miles and, excepting the first half mile which was through the town of Corte Madera, was absolutely devoid of any prospect for business. The distance from Mill Valley on to Sausalito was approximately four and one-half miles, and this stretch of territory,



Sausalito, on the Marin peninsula at the end of the trail from San Rafael. This favorite residence section is charmingly situated on a promontory of San Francisco bay



A corner of Sausalito, showing our "Pacific Service" electric substation, where the energy delivered at high voltage from the mountain power plants is "stepped" down for transmission by submarine cable across the Golden Gate to San Francisco

except for a few scattered houses on the highway, also held forth no prospects. The investment necessary to carry the lines into productive territory was so great at this time that rates which on an ordinary volume would insure a reasonable return to the company would be so high as to put the general use of gas beyond the reach of the ordinary consumer.

In 1921, however, costs fell considerably and in the early part of 1922 the line was carried on to Corte Madera and distribution mains laid to practically all residences. When the trunk line was laid it was realized that it was only a matter of time before it would be possible to extend on to Mill Valley and Sausalito, as costs were continuing to fall and the number of prospective consumers was increasing. Accordingly, to take care of this expected added load the line through Corte Madera was laid of six-inch pipe which has considerably more than twice the capacity of four-inch. The extension of the system to Mill Valley and Sausalito came much

sooner than expected, for another survey in the Spring of 1922 showed such an increase in possible demands that with the costs existing the prospects justified the necessary capital investment on the part of the company.

In July 1922 the work on the six-inch line from Corte Madera south commenced. From the top of what is known as the Corte Madera hill, south to Alto on the Northwestern Pacific, a distance of but one and a quarter miles, is probably one of the most sinuous pieces of highway to be seen anywhere except in the mountains. The total amount of



Pipe-wrapping machine in operation at Sausalito



Looking toward Mill Valley from the highway near Alto. Mt. Tamalpais, whose trails attract thousands of "hikers," makes an imposing background to the picture

curvature in this distance is 1483 degrees, equal to 4.10 complete circles if it were all in the same direction, which of

course it is not. The six-inch pipe line for the entire distance very closely paralleled this highway and, therefore, had a similar alignment. As the average

length of the pieces used was thirty-eight feet, at no place was it possible to lay two lengths in a straight line, and at many places it was found necessary to cut a length in order to follow the line. Before the main lines were laid into either of the towns work on the two distribution systems was started and a considerable portion completed by the time gas was brought in. As soon as the gas was turned on in Mill Valley a gas appliance demonstration room which had been fitted up in the public school there was put into operation. These demonstrations were enthusiastically attended by the residents of the town and the hearty co-operation of the appliance dealers with our company was effected. Cooking classes were conducted and the finished products eagerly devoured by all who were fortunate enough to obtain a share.

A similar demonstration was held in the Y. M. I. Hall at Sausalito when the work had progressed so that it was possible to deliver gas there.

Perhaps the only method employed on this job which has not become familiar through repeated use was the method of protecting the major portion of the six-inch line from corrosion.

From the time when gas was first distributed



Driving piles for meter house in Mill Valley. Driver made on the job

both cast-iron and wrought-iron pipes have been employed as mediums, and from that beginning probably dates the controversy as to which one of them should be used. The advantages of wrought-iron and, at the present time, steel pipes, lay in their cheapness and light-weight, as compared with cast-iron in like sizes, also in their superior strength and flexibility and the greater ease with which leak-proof joints under even high pressure could be made. All of these advantages, however, in the eyes of many engineers distributing not only gas but water as well, were not considered as important as the superior resistance to corrosion from all causes which is possessed by cast-iron. Numerous methods of protecting wrought-iron and steel-pipes have been devised and used from time to time in the attempt to prolong the life of the underground structure; most of these have been effective under some conditions, but would



Driving piles for meter station. Portable compressor in foreground

fail under others. All manner of paints have been employed, those which needed heat for application and those which could be applied cold. Paint, however, when used alone was very susceptible to mechanical damage, such as from falling rocks or blows from shovels, and the protective coating would be injured even before the pipe was covered up.

Several methods of using a fabric covering in conjunction with a heavy paint,



View of Tiburon from Belvedere. This fashionable residence community lies some six miles distant, by road, from the San Rafael-Sausalito highway



Looking across the peaceful waters of Belvedere toward Corinthian Island and Tiburon. Angel Island to the right

usually of the asphalt type, had appeared efficient under many different conditions, but great difficulty was experienced in the application as it was necessary to complete the covering job before the asphalt paint became set. As most asphalt paints are hard at ordinary temperatures it can well be realized how fast the work must be carried out to insure good results. Some of the companies manufacturing light-weight riveted-steel water-pipe developed a lathe-type machine for covering thin pipe which proved very satisfactory, using an asphalt-treated felt paper and, as a binder or paint, an asphalt, solid at ordinary temperatures, but liquid at above 250° F., which worked well at 350° F.-375° F. This type of machine is of such a size as to make it imperative

that the work of wrapping or covering be carried on in a shop, and this of course entails the shipping of the pipe from the factory to the station nearest the job and hauling from there to the places where the pipe is to be laid. In the case of light-weight pipe, the shipping and hauling will not be injurious if reasonable care is exercised, but with the heavier pipe, such as is used for gas distribution and for water supply where the light-riveted pipe is not used, such extra handling would be sure to result in serious damage.

The need for a device of a type to make practicable the wrapping of the pipe in the field had been felt for a long time, but it was not until last year, during the construction of our Marin peninsula line, that such a machine was per-

fectured. One was made available to us in time to be used for wrapping all the six-inch pipe laid in the flat part of the route, which was the portion most in need of protection, as this part of the line lies very near to the surface of ground water. This machine is of a type entirely different from the lathe-type



California city, on the bay shore near Tiburon. Here the United States Government maintains a naval coaling station

machine, being a center-wheel type which in itself requires but little room, the lining up necessary being easily obtained by the use of planks or blocks. But few adjustments or changes to the machine were required, even though it had never been in practical use before, and 33,458 feet of the six-inch main was wrapped at a point about two miles north of Sausalito and hauled to the ditch side without damage to the covering. The pipe to be wrapped is fed into the center of a wheel, which on revolving drives milled wheels which grasp the pipe and revolve and, at the same time, push



"Pacific Service" headquarters at San Rafael, the county seat of Marin

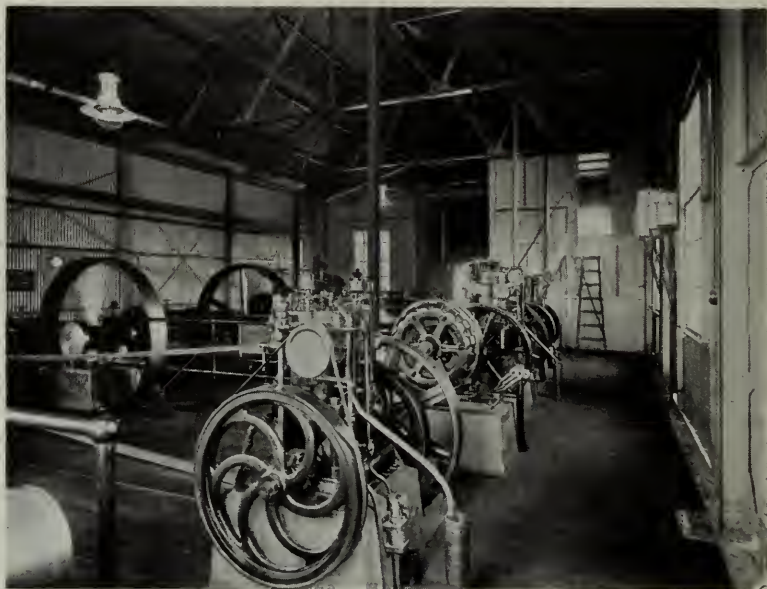


San Rafael gas works, whence high-pressure mains serve residents of several nearby communities

forward the pipe so that the felt covering which has been previously impregnated with asphalt is wrapped spirally around the pipe. Before the felt covering reaches the pipe, however, it goes through a vat of asphalt heated to approximately 375°F. , so that it is coated on both sides with the hot asphalt which it carries to the pipe. The resulting coating is therefore three-ply; first a

thick coating of asphalt, next to the pipe, then the fabric material, and last another coating of asphalt. The machine does the work at such a rate that the operation is completed well before the asphalt has set and results in a thorough bond without voids. The cost of the protective coating applied to the pipe is surprisingly low, particularly to anyone who has had any experience with applying such a material by hand.

All gas sent to Mill Valley and Sausalito will be measured at a meter station situated on property bought for the purpose at the intersection of the State Highway and Blithedale Avenue, which is the principal gateway to the town of Mill Valley from the north.



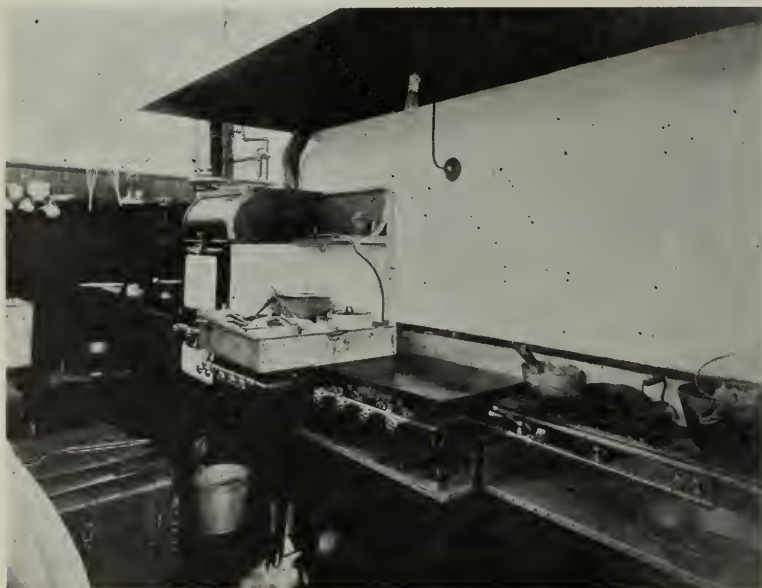
Compressor-house at the gas works, San Rafael

The building will be of attractive appearance and painted in the standard "Pacific Service" colors.

Three Westinghouse fluid positive gas meters, designed to measure gas at high pressure and having a capacity of 30,000 cubic feet of gas per hour each, will be used. They will be so arranged that one will be used in measuring the

gas to Mill Valley, one the gas to Sausalito, while the third will be a spare which may take the place of either in case of repairs or cleaning.

At the present writing the job is practically finished. Many of the residents in both Mill Valley and Sausalito are receiving gas, and already two new residence tracts in the former place are opening up.



A gas-operated kitchen in a Marin county cafe

Luther Burbank and "Pacific Service"

The world-famous plant wizard much impressed by our Pit River hydro-electric development. Believes in electricity and the part it is destined to play in world progress

By FREDERICK S. MYRTLE

On the first day of March, in company with Mr. W. W. Shuhaw, head of the new business department of North Bay Division, the writer enjoyed the privilege of spending an hour with Mr. Luther Burbank in his busy home at Santa Rosa, a picturesque county seat nestling among the peach blossoms of one of California's most picturesque counties, Sonoma.

The purpose of our visit was to present Mr. Burbank with a souvenir of the trip he had made to our Pit river development last October, his fellow - guests upon that occasion including farm bureau officials, farm advisors, editors of farm journals and others particularly interested in the agricultural welfare of our beloved State.

It was recorded at the time that Mr. Burbank expressed himself highly pleased with all that our engineers were able to show him concerning the latest methods of hydro-electric development, and he was not slow to again express his appreciation to Mr. Shuhaw, who had acted as his escort upon the memorable occasion.

The indisputable records that confront all the big men of this universe fix Mr. Burbank's age at 74 years, but there is little trace of advanced age in

the bright, snappy eye and quick, nervous manner of the man who has amazed the entire world with his almost revolutionary experiments in plant culture. He is a small man with a finely shaped head surmounted

by a wealth of white hair; his features are finely cut, his mouth firm, but kindly. However, his appearance needs no description here as his portrait has been broadcasted throughout the entire civilized world. Two of his particular cronies are Thomas A. Edison and Henry Ford, and it was worth something to see the three together, arm - in - arm, in the grounds of the Panama-Pacific Exposition during San Francisco's glorious year of 1915.

"My trip to the Pit river was one of the greatest experiences of my life,"

declared Mr. Burbank, enthusiastically, as he examined the souvenir placed in his hands. This took the form of a copper paper-weight made out of a section of the 220,000-volt transmission cable constructed to convey the electric energy from our Pit river system to the Vaca-Dixon high-tension distributing station 200 miles away. "It was interesting to a degree, and I saw there how hydro-electric power development had progressed since first its prob-



Luther Burbank, aged 74



Luther Burbank's home at Santa Rosa, Sonoma county

lems had attracted my attention."

Here Mr. Burbank explained that he had been something of an engineer himself in his youth. He had been employed in the manufacture of steam engines, and it was in mechanical science that his inventive genius first asserted itself. "I experimented in solar heat, and boiled potatoes in the desert by means of an apparatus that concentrated the sun's rays upon the cooking pot," he explained. "Unfortunately for me I showed my invention to a preacher and he stole it and patented it himself. I haven't been as confiding since."

In the course of time, said Mr. Burbank, his attention had been drawn to hydro-electric development, and he had been to Niagara Falls and had inspected the power plant there. He had, also, been much interested in reading about experiments with high-heads in Switzerland and the effect of high-head pressure on the bearings of water-turbines. He had observed that attempts to use large unit turbines on heads as high as 1000 feet, for instance, had proved failures on account of inability to so design the turbine as to relieve the

bearings of the pressure created by the high-head. He was most interested in Mr. Shuhaw's explanation that for the use of Pit No. 1 development and others that will follow a turbine of American design had been constructed by which the water is introduced to the wheel in such a way as to overcome this tendency to overweight the bearings.

"I understand exactly," assented the plant wizard, as the design was explained to him. "The water has the action of lifting up as much as of pressing down."

The question of line installation was brought up and Mr. Burbank was interested to learn that wire operated at the extremely high voltage of 220,000 must be of large diameter in order that the voltage density at the surface of the wire shall be low enough to prevent a discharge of electricity from the wire to the air.

The company's Vaca-Dixon distributing station also had impressed him much, he said, and he asked some questions about the rotary condensers installed there to regulate voltage.

In a word, like all big men of the age, Mr. Burbank is particularly interested



The plant wizard on the porch of his Santa Rosa home

in electricity. For, in that mysterious agent he sees the great twentieth century developer. Indeed, he goes farther than many in this, for he sees in electricity the controlling force of our universe in more ways than one. "I differ with all scientists from Newton down who regard gravity and electricity as things apart," he said. "In my opinion, they are one and the same. I think the attractive force of gravity is nothing else than electric energy."

Mr. Burbank expressed his belief that electricity has an immense influence on plant life, and here he branched off into a discussion of some of his most recent experiments in "grafting." He regarded as his latest triumph the pineapple-quince. "Try them," he declared enthusiastically. "They are simply delicious."

Mr. Burbank hopes to see the deserts of the West all abloom, and to electricity he looks to effect the transformation. "The desert is the great thing, believe me," he said. "All you have got to do is to get water there."

Coming down to everyday problems of life, Mr. Burbank informed us that he got through an enormous amount of clerical work with a comparatively small force. His correspondence, he said, amounted to something like two thousand letters a day, and he so contrived that no letter

went unanswered. Just now he told us he was in the midst of a scientific correspondence with Dr. Chas. P. Steinmetz, the great chemist of the General Electric Company at Schenectady, upon the problem of extracting carbon from trees. Mr. Burbank manages to do all this study and office work, superintend his outdoor establishment, receive callers from all parts of the world and, incidentally do some writing on the side. He pointed to a long row of volumes upon a shelf, over a dozen in number. "I have written all those in nine years," he said, with a smile of gratification. "I do my writing at night after work."

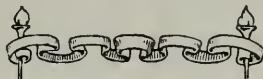
There is an old saying that the really busy man is the only man who has time for anything. Mr. Burbank's life is an apt illustration of the truth of that saying. It is said, also, that years are no bar to mental activity. Mr. Bur-

bank demonstrates the truth of that saying also.

In conclusion, Mr. Burbank regards our company's achievements in hydro-electric development as any other great progressive intellect would regard them, namely, as instruments in the inevitable elevation of California to first place among the progressive states of our great American commonwealth.



Luther Burbank bidding Pit One au revoir



OUR "PACIFIC SERVICE" EMPLOYEES ASSOCIATION

The general educational committee of the P. S. E. A. held meetings on February 20 and March 6, and the minutes of the last meeting show that the committee covered the subjects of organization, courses, records, lectures, committee results, class organization, new business, certificate seal, graduates, deposits, bills, library, pictorial organization charts and educational work among women employees.

The P. S. E. A. has many courses available for its members. These courses cover the following subjects: Fundamentals of Electricity, Practical Electricity, Gas Production, Hydraulics, and Steam Engineering. Four members of East Bay section have completed the steam course—"Elementary Theory of Boiler Operation"—and have received their certificates from the chairman of the educational committee. San Jose section will present certificates to eight graduates who have successfully completed the course covering "Fundamentals of Electricity," and from reports there are many more students ready for graduation.

The chairman has arranged a series of lantern slides which will visualize the educational activities of the committee. These will be shown throughout the year in the various divisions, so that those who are not in close touch with the whole system can gather what the other sections are accomplishing. There will also be lectures, popular and semi-technical; the popular lectures will be for a mixed gathering, while the semi-technical will be for students who are studying along technical lines. The educational work of the P. S. E. A. was organized in August, 1921, and classes were started in all parts of the territory.

The committee is fortunate this year in securing the services of an educational assistant, who will handle correspondence, maintain records and files and, also, aid the committee in its general activities.

The annual snow carnival took place this year at Truckee on Saturday and Sunday, February 24 and 25. A special train of eleven cars took a delegation of 140 from Sacramento on Saturday afternoon, and with additions made at way-stations, principally Roseville, Auburn and Colfax, the crowd numbered 174 when the train pulled into Truckee in the late evening.

The weather was beautiful and the snow plentiful, and the outing delightfully enjoyed. On the evening of arrival some took the sleigh ride to Donner lake, while others danced to music furnished by a "Pacific Service" orchestra. The festivities of Sunday included tobogganing, sleighing and skiing. All members of the party made the most of the brief time allowed for sport in the snow and when the return was made to Sacramento Sunday night it was generally agreed that the outing had been a success in every way.

The Southern Pacific extended many courtesies, and the dining car service especially came in for many words of commendation.

At Colgate power-house on March 1 fourteen members of Colgate Division received service badges at the hands of Division Manager Johnson. Numbered among these fourteen men were some who had furnished timber to build and repair the flumes which convey the

water from the head dam on the Yuba river to the power-house eight miles below, men whose duty it is to maintain those flumes, men who tend and regulate the flow of water through the penstocks to the power-house, operators who attend the water wheels and generators which convert this water into electric energy, men who repair and keep in service the generating equipment, linemen and patrolmen who maintain the lines which transmit the power from the generating plant to the valleys beyond, agents of the company in towns who maintain service on the distributing system, men who through the accounting department guard the financial interests of the company. In a word, through the fourteen men gathered around the table that night might be traced almost step by step the entire process of bringing "Pacific Service" from its source in the Sierra snows to light and warm the homes and turn the wheels of industry in the cities and towns of valley and coast.

The full list of company service

badges presented this year will be found below:

Pit section of P. S. E. S. shows more activity than ever even though the number of employes in that district has been decreased materially. With dances and picture shows, meetings of the P. S. E. A. women's auxiliary, education classes, etc., there is always plenty going on to relieve the monotony of life in the mountains.

The evening of St. Valentine's Day, February 14, was celebrated by a party which included a vaudeville entertainment. Washington's Birthday was celebrated with a gathering of about 170 people, including visitors from Hat Creek power-house and from the neighboring towns of Fall River Mills and McArthur.

With the prospect of new activity in hydro-electric construction this spring, it is safe to say that Pit section will more than hold its own among the territorial divisions of the P. S. E. A.

The "Pacific Service" Roll of Honor

The annual distribution of service badges to employes took place the first of the year, as has been the custom since its inauguration in 1916.

These buttons, bearing the "Pacific Service" emblem, are a token of reward for long and efficient service. They differ in design according to terms of service. Those indicating ten years' service are plain; those indicating fifteen years' service show one star in the apex of the emblem triangle; those indicating twenty years' service have a single diamond; twenty-five years' service, a diamond and a star; thirty years' service, two diamonds; thirty-five years' service, two diamonds and a star; forty years' service and upwards, three diamonds.

There are 291 employes on the honor list this year, of whom 139 have moved up a grade since the last distribution, while 152 employes receive new service badges. The list follows:

FORTY YEARS' SERVICE

San Francisco Division: W. F. Taylor

THIRTY-FIVE YEARS' SERVICE

Sacramento Division: David Barnes; *San Francisco Division:* Pat O'Donnell, J. P. Sullivan, M. S. Nelson.

THIRTY YEARS' SERVICE

East Bay Division: M. Bischoff, J. H. Pape; *Sacramento Division:* H. B. Mathews, E. A. Wright; *San Francisco Division:* F. E. Oldis,

R. R. Morrison, W. Eckhardt, Geo. W. Kern; *San Joaquin Division:* Thos. M. Madden.

TWENTY-FIVE YEARS' SERVICE

De Sabla Division: Chas. Rice; *Drum Division:* F. D. Rollins; *East Bay Division:* M. McGuire, J. J. O'Brien; *Sacramento Division:* Arthur E. Coppin, John Klutz; *San Francisco Division:* Gus Anderson, Peter Conlon, J. D. Hartnett, J. F. Hathaway, Fred Nimrat; *San Jose Division:* O. D. Dewey.

TWENTY YEARS' SERVICE

Head Office: Third Vice-President and Secretary D. H. Foote; *Department of Electrical Construction and Operation:* I. A. Roseveare, F. R. George, James Martin; *De Sabla Division:* Chas. Coleman; *Drum Division:* J. Sherman; *East Bay Division:* H. D. Cabill, W. L. Price; *Sacramento Division:* Jas. H. Donald, I. M. Hastings, Geo. A. Hooker, Chas. R. Maxfield, John O. Tobey, Maurice E. Toomey; *San Francisco Division:* W. E. Dawson, E. S. Burdick, A. B. McDonald, J. E. Burgess, A. E. Flagg, J. E. Murphy, W. M. Henderson, Patrick Lyons, C. E. Comstock, W. J. Habernicht, John Lawlor; *San Joaquin Division:* Fred Hodes, L. Smalakies; *San Jose Division:* R. H. Hargreaves, John D. Kuster, L. G. Owen, H. A. Schroeder; *Shasta Division:* F. A. Dooley; *Sacramento Supply District:* E. B. Kinz.

FIFTEEN YEARS' SERVICE

Head Office, Secretary's Department: O. H. Barthol; *Department of Engineering:* Jens Patterson, R. C. Powell; *Department of Gas Construction and Operation:* R. D. Compton; *Auditing Department:* H. E. Butler, W. H. Pearce; *San Francisco Supply Department:* H. A. Patton, Edw. Roche; *Colgate Division:* J. V. Kyle; *Drum Division:* A. G. McCrary; *East Bay Division:* Miss M. J. Adamson, M. O. Briggs, C. Cook, E. F. Cronin, G. Doll, M. E. Donovan, P. J. Douglas, G. F. Earle, R. A. Gentis, O. M. Hager, C. Kirtley, A. McGill, A. Marson, H. C. Meyer, W. N. Munro, J. M. Rowe, C. J. Scriven, Howard Smith, E. C. Aubrey, Lee Smith, A. F. Sederstrand, A. Gunneson; *Sacramento Division:* Chas. Brasher, Jas. M. Brent, Wm. H. Bush, J. R. Dennison, E. T. Monez, R. C. Walters, L. S. Young, Carl W. Smith; *San Francisco Division:* E. J. Dooley, Louis J. Ravani, Miss Grace Richardson, W. Conway, E. Peabody, John Cuneo, M. Daly, J. R. McGrath, J. Sullivan, H. LeLouran, James Bennetts, Dennis Corbett, D. Dineen, James Gaffney, Chas. Gilbertson, John Kirk, M. J. Lucey, D. J. McCarthy, John Meehan, Pat O'Connor, J. J. Sheerin, M. Tambellini, Henry Ernst, R. Linehan, W. Hoey, Pat Lyon, John H. Meyers, C. D. Reynolds, Wm. H. Thompson, Thos. W. Walsh; *San Joaquin Division:* Gus Emerald, F. L. Harris, H. D. Jones, C. H. Northcutt, W. Johnson, E. J. Murphy; *San Jose Division:* B. B. Johnson, F. G. Maynard, F. Tomkin; *Shasta Division:* D. P. Hein; *West Side Division:* Herman Thode; *Sacramento Supply District:* L. Spinetti, E. C. Youman.

TEN YEARS' SERVICE

Head Office, Department of Gas Construction and Operation: W. S. Yard; Vice-President in charge; *Department of Executive Engineer:*

W. G. Vincent, Jr., Vice-President in charge; *Department of First Vice-President and General Manager:* Miss E. M. Brandt, R. D. Shea; *Secretary's Department:* C. L. Hornberger; *Department of Electrical Construction and Operation:* Frank E. Dyer, Hugh F. Flynn, Hector Keesling, Percy Walters, S. V. Rossiter, Frank Segale, Robt. Nixon, George Small; *Engineering Department:* S. E. Carpenter, I. C. Frickstad; *Department of Executive Engineer:* R. Jenny, R. Mills, S. B. Shaw, W. D. Sultan; *Property Department:* P. Botti; *Land and Tax Department:* G. H. Canfield, F. J. Pazak; *Auditing Department:* D. C. Hutchinson, D. G. Martin, Miss Edna McNulty, L. I. Rand; *Credit Department:* G. H. Rand; *Supply Department:* J. Eadie; *Personnel Department:* E. G. McCann; *Colgate Division:* W. G. Davison, Chas. Boynton, E. L. Gibson, Elmer Hall, H. P. Humphreys, M. H. Kane, Peter Lucero, P. E. Munday, Sid Thomas; *De Sabla Division:* E. A. Abbot, F. E. Lynch, C. C. Nelson, E. R. Pryor, G. P. Welschke; *Drum Division:* J. Eddy, J. L. Michaels, L. G. Roberts, A. C. Schroeder; *East Bay Division:* F. L. Berghauser, J. Biggy, Geo. Bolton, J. C. Bowden, R. A. Doan, H. L. Fryer, Jas. Harvey, R. Jacobus, Ivor Jones, W. C. Orcutt, W. F. Pape, R. C. Parkinson, R. E. Pullen, J. E. Scanlon, F. Vogelsang, E. C. White; *North Bay Division:* A. T. Kelly, D. D. Robison, Jos. Sauer, W. D. Todd; *Sacramento Division:* A. E. Allen, A. Bergman, H. T. Deeney, H. T. Guntherberg, H. M. Locke, M. E. Morgan, W. G. Massey, Jas. Medlyn, S. O'Farrell, O. A. Ohman, J. M. Russell, Mrs. A. Reed, W. S. Shaw, F. J. Williard, G. S. Wheeler, F. P. Bruner, W. P. Edwards, C. G. Friburg; *San Francisco Division:* J. M. Mayfield, Chas. Floyd, E. W. Hueter, D. O'Connell, Scott Stewart, P. S. Beel, A. W. Dickieson, N. V. Stiepanica, W. H. Augustine, I. Jacobs, Mrs. D. R. Withers, G. E. Browning, E. G. Schultz, T. Taylor, J. M. Doherty, Charles Noone, J. C. Potter, J. J. Daly, E. C. Wood, W. A. Bowman, R. S. Brown, Jos. Cook, E. W. Deane, P. Donovan, S. Figaro, P. J. Freygang, C. C. Glafke, C. Leonard, R. P. Lutzi, C. J. O'Connor, W. D. Patterson, C. Souther, Robert Stark, W. H. Taylor, Michael Cloonan, E. F. Ford; *San Joaquin Division:* John Abby, F. C. Adams, R. J. Bixel, Geo. Bolter, W. S. Cohan, D. McIsaacs, C. N. Noack, A. Pierce, Geo. Ralls, M. Robinson, J. B. Solari, M. H. Strong, C. E. Thompson, W. H. Wolf; *San Jose Division:* A. R. Bertshinger, N. H. Brown, J. H. Ely, P. F. Gonzalves, James Goodwin, A. M. Jeppeson, Carl Johnstone, N. Mosher; *Shasta Division:* L. Fogelsang, S. L. Gilman, Jess Marx, W. E. Richardson; *Sacramento Supply District:* J. B. Dyer, Harvey Derr.

In Memoriam

Joseph Warren Hall

Born January 29, 1847 — Died March 16, 1923

With deep sorrow we have to record the passing from our "Pacific Service" family of Joseph Warren Hall, of Stockton, one of our company's oldest and best trusted employes, who had but recently withdrawn from active service to accept the honorable retirement provided under our pension system.

His was a life of ceaseless activity. Born in Rideout, Illinois, 76 years ago, his first commercial experience was gained in a bank at Rockford. He might have remained there had it not been for the spirit of adventure that was in his blood; but when, in 1869, news came that the first trans-continental railroad had just been completed to California young Hall's eyes turned westward, and he made the trip over the Sierra Nevada. Upon arrival he settled first in Napa county as book-keeper at a quick-silver mine. After nine years there he went to Oakland, where he married.

He spent three years in business on his own account, after which he returned to his old employers and in their interest went to Folsom as manager of the Natoma Water and Mining Company's properties which included a three-thousand acre vineyard. There he remained three years, after which he went to Pasadena and spent a year as manager of an orange grove. From Pasadena he migrated to Fresno where for seven years he was connected with the Barton properties.

Again he returned to his old business associates of mine and vineyard and this

time became manager of the American River Land and Lumber Company, with headquarters at Placerville, and, also, of the Sacramento Electric, Gas & Railway Company, which is now a part of our "Pacific Service" system. For nine years he held these dual managerial positions

and then he moved to Stockton as manager of the Stockton Water Company. When our company took over the properties of that concern it was but natural that Manager Hall should remain at his desk, and there he did remain until March 1, 1921, when he concluded to retire and accept the pension that was his reward for long and faithful service.

Though full of years he was still active in mind and body, and he found occupation in a vineyard which he owned about six miles out of Stockton. There he camped until, barely two months ago, illness came upon him. It came suddenly, almost without warning, as is not

unusual in men of his type. Complications set in, and on March 16 he passed away.

Joseph Warren Hall was a man of kindly disposition. He mingled business efficiency with consideration for all with whom he came in contact. He was as highly respected as he was widely known. He was a member of the Elks and in his daily walks reflected, in a large measure, the teachings of his fraternity. He is survived by his widow, Mrs. Nellie Hall, a daughter, Mrs. D. C. Russell of San Francisco, and a son, Thomas P. Hall of Los Angeles.



The Financial Side of "Pacific Service"

Judging by the accomplishments of the first two months of the present year, the growth of business in 1923 promises to surpass last year's unexampled record. In January and February, the net addition of new customers aggregated 7,305, or almost double the 3,798 customers added in the two corresponding months of the preceding year. The net gain in customers during the twelve months ended February 28, 1923, was 49,802, bringing the total number on that date up to 652,569.

Sales of electric energy in January and February increased 17,553,000 K. W. H., or 11.15%, as compared with the first two months of last year. Likewise, gas sales increased 245,383,000 cu. ft., or 10.50%. In both these major branches of the Company's business the percentage of growth exceeded the average increase of sales for the year 1922, namely 7.47% in the Electric Department, and 7.58% in the Gas Department. The pace at which the new year has begun, supplemented by knowledge of general business conditions in the territory served by the Company, encourages the belief that during the year 1923 the very satisfactory performance of 1922 will be exceeded.

Lower electric rate schedules were put into effect on February 20, 1923. To cite but one schedule applying to the largest number of consumers, basic rates for general domestic and commercial lighting service, including household appliances and small power service in all cities and towns served by the Company now range from 6c per K. W. H. down to 2½c per K. W. H., depending on the quantity used; and in all rural territory, from 7c per K. W. H. down to 3½c per K. W. H. These rates, in contra-distinction to practically all other commodities and services, are substantially below pre-war levels, and are probably the lowest in the country, considering the extent of the territory and the widespread distribution effected through a network of more than 11,000 miles of transmission and distribution lines, reaching into hundreds of cities, towns and hamlets, and serving thousands of customers in purely farming sections. Such low rates have only been made possible through the enterprise of the Company in developing new sources of cheap hydro-electric energy and in building up an enlarged volume of business through intelligent and energetic sales efforts. The management is confident that with the economies that are being obtained in the operation of its Pit River hydro-electric plants, and with the large volume of new business that is constantly being connected to its distribution lines, the Company, even with these low rates, will be able to maintain its sound financial position and show satisfactory results to its security-holders in 1923.

The Company's income account for the year 1922 was published in last month's PACIFIC SERVICE MAGAZINE. The annual audit of the Company's books has now been completed, and we present on the opposite page balance sheet as of December 31, 1922, as prepared and certified by Messrs. Price, Waterhouse & Company, Certified Public Accountants. It will be noted that the Company closed the year in a strong cash position, with an adequate working capital, including \$5,684,212.05 in cash, and with substantial reserves for depreciation and other contingencies. The surplus at the close of the year was \$8,593,388.06, as compared with \$7,946,336.11 at the beginning of the year, after writing off \$865,543.43, which includes, among other items, the entire premium and unamortized discount on \$10,000,000 par value of 7% gold notes retired three years before maturity.

PACIFIC GAS AND ELECTRIC COMPANY
and
MT. SHASTA POWER CORPORATION

CONSOLIDATED BALANCE SHEET

December 31, 1922

ASSETS

CAPITAL ASSETS—Plants and Properties.....			\$200,250,877.54
DISCOUNT AND EXPENSES ON CAPITAL STOCK ISSUED			8,326,097.24
INVESTMENTS			1,680,343.53
TRUSTEES OF SINKING FUNDS:			
Cash	\$	60,747.28	
Interest accrued on bonds held in sinking funds		115,323.59	176,070.87
CASH IN HANDS OF TRUSTEES—For redemption of 7% Gold Notes			78,780.00
CURRENT ASSETS:			
Materials and supplies on hand and in transit	\$3,709,041.49		
Installments receivable from subscribers to first preferred stock	1,155,695.66		
Bills receivable	\$ 268,472.16		
Accounts receivable	3,805,194.71		
	\$4,073,666.87		
Less—Reserve for bad debts.....	191,875.10	3,881,791.77	
Cash	5,300,715.85		
Construction funds in hands of trustees of first and refunding mortgage	383,496.20		
Interest accrued on investments.....	6,143.46		14,436,884.43
DEFERRED CHARGES:			
Discount and expenses on funded debt.....	\$5,734,200.25		
Unexpired taxes and undistributed suspense items	93,243.18		5,827,443.43
			\$230,776,497.04

LIABILITIES

CAPITAL STOCK OF PACIFIC GAS AND ELECTRIC COMPANY:

Common	\$34,684,034.00		
First Preferred (including stock subscribed for but not fully paid and issued).....	51,178,272.50		
Original Preferred	37,100.00	\$	85,899,406.50

CAPITAL STOCK OF SUBSIDIARY COMPANIES not held by the

P. G. & E. CO. and unpaid dividends thereon.....			20,583.54
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BONDS			111,700,700.00
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CURRENT LIABILITIES:

Accounts payable and unaudited bills.....	\$1,886,976.17		
Drafts outstanding	592,011.19		
Meter and Line Deposits.....	699,091.40		
Unpaid coupons	303,265.00		
Interest accrued but not due.....	1,600,105.98		
Taxes accrued but not due.....	2,101,629.88		
Dividends declared	520,208.05		7,703,287.67

RESERVES:

For Northern California Power Company consolidated plant adjustments and accrued depreciation.....	\$ 1,648,265.73		
Depreciation	13,049,320.57		
Insurance and casualty funds.....	341,410.88		
Reserve for amounts charged during 1913, 1914, 1915, 1916 and 1917 to consumers in excess of rates allowed by City Ordinances	1,820,134.09		16,859,131.27

SURPLUS:			8,593,388.06
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\$230,776,497.04

Pacific Service Magazine

PUBLISHED IN THE INTERESTS OF ALL EMPLOYEES OF THE
PACIFIC GAS AND ELECTRIC COMPANY

JOHN A. BRITTON - - - - - EDITOR-IN-CHIEF

FREDERICK S. MYRTLE - - - - - MANAGING EDITOR

A. F. HOCKENBEAMER - - - - - BUSINESS MANAGER

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PACIFIC GAS AND ELECTRIC COMPANY

at 445 Sutter Street, San Francisco

The Pacific Gas and Electric Company desires to serve its patrons in the best possible manner. Any consumer not satisfied with his service will confer a favor upon the management by taking the matter up with the district office.

VOL. XIV

MARCH, 1923

No. 10

EDITORIAL

Now that the winter season is behind us and the verdant freshness of spring is upon the land, it will interest readers of PACIFIC SERVICE MAGAZINE to learn that our company is about to undertake further extensions of its hydro-electric generating and distributing facilities.

The most important item in the construction budget is Pit No. 3 power-plant. It seems only yesterday that an enthusiastic concourse of spectators witnessed the formal opening of Pit No. 1, with its installed capacity of 93,800 horsepower, while, simultaneously, a still larger crowd attended the arrival of the first kilowatt of electric energy from the Pit at Vaca-Dixon substation, a distance of upwards of 200 miles from the point of generation. Previous to that, of course, two medium-sized plants on Hat creek had been constructed. To the uninitiated it would appear that with these developments in full operation our company would have power to spare for some time to come. Such, however, is not the case.

Our company, in its electric service side, is growing at a rate of 20,000 to 25,000 kilowatts a year of "peak," and our engineers contemplate that the demands upon us increase at the rate of $7\frac{1}{2}$ per cent per annum, a present increase of about 120,000,000 kilowatt hours a year. Now, it was a pleasure to record the opening of Pit No. 1 plant last fall, but this, despite the fact that it may be expected to contribute nearly one million kilowatt hours per day to our "Pacific Service" electric distributing system, did little more than fill the gap between supply and demand that had been occasioned by a slackening in construction work during the period of financial depression preceding the war and, of course, during the war period itself. That gap we had managed to fill by working our steam-electric plants in the big cities overtime. But it is unnecessary to assure our readers that, economically and in every other way, it is to hydro-electric power that we must look for the great work of state development. And so it comes that we are about to proceed with Pit No. 3.

The beginning of this development will be marked by a diversion dam, 125 feet in height, on the river at a point about $2\frac{1}{2}$ miles below Peck's bridge, on the highway between Burney and Bartle, about twelve miles down stream from Pit No. 1. From this dam a tunnel will be constructed some 22,700 feet in length and of 3000 cubic feet per second water flow capacity, to a point about 300 feet above the river from which the water will be sent surging down the pen-stocks into the power-house to be constructed on a wooded flat on the river bank. The equipment of the power-house will be, in round numbers, 100,000 horse-power in installed capacity of generating apparatus.

Construction work will start almost immediately. A description in detail will appear in an early issue of PACIFIC SERVICE MAGAZINE.

In this way our company enters upon the second important stage of its great Pit river development which, when completed, in power-plants, tower lines, substations and general reinforcement and reconstruction of our company's distributing system all over its territory from the mountains of Shasta to the bay of San Francisco, will entail an expenditure of approximately one hundred million dollars. It is expected that Pit No. 3 will be completed by the fall of 1925 by which time, according to our calculations, the demands upon us for electric energy will have increased between 350,000,000 and 400,000,000 kilowatt hours. So that, in giving orders for the construction of this plant, our company is merely following out its usual policy of keeping well abreast of its power needs.

Another important item on the construction program for this year is the raising of the dam at Lake Fordyce, the parent reservoir of the South Yuba-Bear river system, and the making of numerous improvements in the Drum power development below Lake Spaulding.

Lake Fordyce is a relic of the early mining days in the Sierra region, and at the time of the purchase of the South Yuba Water Company's properties by our company was the largest of the cluster of lakes gathered around the Sierra summit that supply water not only for a chain of power-plants in the system but, also, for the irrigation of thousands of acres of deciduous fruit lands in Placer county. The present storage capacity of Lake Fordyce is 20,000 acre feet and now, by raising the dam 47 feet, it is proposed to increase this capacity to 47,000 acre feet. Improvements in the Drum canal below Spaulding, an additional pen-stock for Drum power-house and an afterbay half a mile down stream from the power-house are among the other items on the

program that will take care of the additional water.

All this means that the net output of the South Yuba-Bear river development will be increased by some 25,000,000 kilowatt hours to be placed at the disposal of our consumers in that section of "Pacific Service" territory. Good news is conveyed to the farmers of the Auburn-Newcastle region by the announcement that the increase in water storage up above will benefit points below Wise power-house for at least nine months of the year to the extent of, in round numbers, 45 second feet, or 1800 miners' inches.

Our old stand-by, gas, also appears on the construction program. In this issue appears an article descriptive of extensions of service in the Marin peninsula made possible by developments in high-pressure construction. Other extensions of like character will be announced from time to time. Meanwhile, construction of the ten million cubic foot holder for the Potrero plant in San Francisco is proceeding rapidly and it is expected the holder will be in operation in about a month from now. Additions to generating equipment at our gas plants in the cities of San Francisco, San Jose, Sacramento and San Rafael give evidence of the constantly growing demand for this hundred-year-old commodity.

NOTICE TO STOCKHOLDERS

It is our policy to regularly mail PACIFIC SERVICE MAGAZINE to all stockholders of the company. Consequently, when two or more of the same family are stockholders a corresponding number of copies are sent to the same street address. If in such instance more than one copy is not desired, we will appreciate a notification to the office of the Third Vice-President and Secretary.

Tidings From Territorial Divisions

East Bay Division

The new office building of East Bay division is rapidly nearing completion. The inside is now receiving its final finish and the decorative plaster is making the main floor as attractive as the outside is imposing. "Pacific Service" expects to be housed there in another sixty days.

The skyline of Oakland is rapidly changing with two buildings being finished that would be a credit to any city in the country.

The steel work of the twenty-story Tribune building is all completed and the base for the huge clock that will crown the building is being set. In the same block the eighteen-story annex of the Oakland Bank is being rapidly made ready for occupation, the concrete being poured and it will be finished by August 1.

Three other buildings of about the same height are projected and will start most any day. On every side there is the spirit of optimism and the belief, backed by figures, that 1923 will prove an even larger building year than 1922.

Reid Bros., manufacturers of hospital supplies, are completing their new factory at Irvington, where the output for the entire coast and the Orient will be made. The Seattle factory, which formerly supplied this demand, will be closed and the workers and their families brought here.

A celebration, such as is possible in no other coast city, was held in Oakland recently, when a full train of automobiles built in Oakland was sent to the south. The car was the Star, which is only one of four now being turned out in large quantities here.

Three hundred cars were in the ship-

ment, which gives an idea of the size of the plant.

A growth in bank clearings of 750 per cent in fifteen years is an Oakland record that challenges that of every other city in the country. There are three significant barometers of business activity, bank clearings, building permits and postal receipts. When compared with the population growth of Oakland, these items disprove emphatically the statement that Oakland's population is growing faster than her ability to care for that population.

Viewed from almost any angle, Oakland is making startling forward strides. Building permits were 55 per cent greater in 1922 than in 1921. Bank clearings increased 25 per cent during the year just passed. Postal receipts showed an increase of 17 per cent, putting us above the one million-dollar mark. Similarly, other comparative statements prove that Oakland is on its way.

Five thousand one hundred and eight vessels stopped in Oakland in 1921. In 1922 the number increased to 6,021, the biggest increase of any year in the history of the city.

Our school enrollment in the four-year period from 1918 through 1922 increased 27 per cent, and on down the line of statistical statements.

Below are listed seven comparative tables, which substantiate Oakland's claim of being one of the fastest growing cities in the United States:

POPULATION

1900.....	67,000	
1910.....	150,000.....	Inc. 81%
1920.....	218,000.....	Inc. 43%
1923.....	270,000.....	Inc. in 3 yrs. 25%

BANK CLEARINGS

1918.....	\$335,344,000	
1919.....	459,583,000.....	Inc. 40%
1920.....	552,614,000.....	Inc. 20%
1921*	543,100,000.....	Dec. 2%
1922.....	680,053,000.....	Inc. 25%

*Period of falling prices.

POSTAL RECEIPTS

1918.....	\$ 626,800	
1919.....	650,560	Inc. 4%
1920.....	784,700	Inc. 20%
1921.....	878,820	Inc. 12%
1922.....	1,025,234	Inc. 17%

BUILDING PERMITS

1919.....	\$ 7,134,000	
1920.....	9,488,000	Inc. 33%
1921.....	15,792,000	Inc. 66%
1922.....	24,468,000	Inc. 55%

SCHOOL ENROLLMENT

1910.....	17,200	
1914.....	19,050	Inc. 11%
1918.....	27,304	Inc. 64%
1922.....	34,282	Inc. 27%

PORT ACTIVITIES

	Vessels	TonsCargo
	Arriving	Handled
1919.....	5,213	973,441
1920.....	5,599	1,070,668
1921.....	5,188	1,053,344
1922.....	6,021	1,151,311

ASSESSED VALUATION

1910	\$107,794,000
1912	116,882,000
1914	137,728,000
1916	142,915,000
1918	148,571,000
1920	156,645,000
1922	169,894,000
1923	181,176,000

E. B. D.

Colgate Division

The Colgate Division is now in the midst of a building boom. Marysville and Yuba City anticipate the building in 1923 of 600 new homes. In order to house the employees of the Hutchinson Lumber Company near Oroville, it is estimated that approximately 400 new homes will be necessary.

J. N. Watt is subdividing a large tract near Oroville and within a short time it is anticipated that at least forty or fifty houses will be built.

Repairing and improvements of the pipe organ at the Presbyterian church will be in charge of Toutjian Brothers at Oakland, a firm that has been in the pipe organ business for fifty years. When it is completed, the old organ, a pioneer on the Pacific Coast, will be restored to its old time excellence as a musical instrument. The cost will be about \$4500.

This organ was brought to Marysville around the Horn in 1868, when the city

was in its youth. It was manufactured in Boston by Hook Brothers, famous in those days for the quality of their instruments. There are but three of this make on the Pacific Coast today. The old organ has all these years been supplied with air by a hand pump. Whenever it has been used it has been necessary to have some one work the bellows, sitting on a high platform, out of sight of the congregation, while doing so. This is to be changed. An electric motor is to pump the air in the future, and the job of pumping that has been filled by many present day prominent men of the city in their boyhood will be no more.

Years ago one of the organists who played the instrument during worship was Dunning Rideout, now president of the Rideout branch of the Bank of Italy in this city.

Over 30,000 fruit trees and 115,000 grapevines are being set out in the famous Sutter Basin river bottoms this year. These plantings add more than 500 acres of land in deciduous fruits and grapes to the Sutter county fruit bent. Peaches are the favorite, with plantings totalling 15,000. Pears come next with 6,550, followed by plums and cherries in the order named. Alicaute Bouchet and Zinfandel grapes comprise the vine plantings.

This land was heretofore devoted exclusively to the production of grain, beets, beans and other field crops.

Most of the new trees and vines should begin bearing in three or four years and yield profitable crops shortly thereafter.

E. C. J.

De Sabla Division

The new Chico charter was declared officially effective recently by City Clerk Ira Morrison when he received a ratified copy from Secretary of State Frank Jordan. It was placed on file in the Municipal building.

Construction work on the First National Bank of Chico will start immediately following the awarding of the contract to Hannah Brothers of San Fran-

cisco, it was announced by Arthur H. Smith, president of the bank. The contract price was in the neighborhood of \$160,000, which was \$15,000 less than the nearest competitor. Fifteen contractors offered bids.

The contract stipulates that the building, which will be a four-story structure at Third and Main streets, shall be completed within a period of eight months from the date of signing the contract. It is expected to be ready for occupancy by January 1, 1924.

Leases covering a period of five years for a part of the Randall building at Seventh and Broadway have been secured by the Peerless Ice Cream Company of Sacramento, which plans to install its distributing plant for the entire northern California district in this city. Work of remodeling the building to accommodate the distributing plant has already been started and it is expected that the plant will be opened about April 1.

The almond blossom festival held recently at Bidwell hall on Kennedy avenue was declared at a meeting of the Fairview community center to have been a huge success and plans are now being formulated to make the festival an annual event.

I. B. A.

Shasta Division

That coke-burning foundry equipment can be converted to gas at small expense has been demonstrated conclusively in Redding.

The equipment in question was a coke-fired brass furnace of 300-pound capacity. It is now a gas-fired furnace to the complete satisfaction of Mr. I. J. Johnson, proprietor of the Johnson Iron Works. The change involved only the laying of a two-inch gas main and service and the purchase of a Zander No. 3 burner. The firebox of the furnace was completely bricked in and a new fire brick lining placed in the furnace itself. G. H. Gumz of the gas sales department planned the job and with minor exceptions the layout follows his suggestions.

Air pressure at from eight to sixteen ounces is supplied the burner, the flame being delivered and projected into the furnace at an angle of elevation sufficient to give it a rotary motion around the entire crucible.

Fuel consumption varies with the amount of gas and air mixture and with the size of crucible to be melted. The average cubic foot consumption of gas is approximately 700 feet per hour and the time to bring the furnace from cold start to point of pouring averages two hours. With the furnace fully heated further operating time averages one hour and fifteen minutes per crucible of 250 pounds. Mr. Johnson has estimated that two-thirds of his operating costs have been saved by the change. Formerly it required a man's full time to melt and run two or three crucibles per day. With the coke fire the danger and expense of burned crucibles presented a problem solved only by constant watching of the furnace. This man's time is now available for other work during the melting process. A computation of operating costs covering a month's time shows that brass can be melted for a cent and a fraction per pound.

Mr. Johnson informed the writer that the total installation, exclusive of the blower, cost him less than seventy-five dollars. He is an enthusiastic convert to the use of gas for industrial purposes and is planning on further installations for his plant. The Johnson Foundry specializes in brass and bronze castings, its reputation for the quality of work turned out being more than state-wide. "Pacific Service" has increased the capacity of the plant three-fold at very little expense.

F. S. C.

North Bay Division

The Gas Construction Department has completed the original GM for the piping of Mill Valley and Sausalito for gas. Over 1100 services have been installed in these two towns and applications for additional service are coming in daily. The next big job proposed is the San Rafael-Petaluma main, work on which will be started at once.

The growth of the Petaluma suburban territory is well indicated by the work about to be started.

L. J. Peterson, local district manager for the company, reports that approval has been made for the extension of approximately two and a half miles of power lines along the Chileno Valley road from Western avenue. This new electric service will supply thirteen applicants in the territory, involving an expenditure of \$5,006.69. These new consumers in addition to installing motors are installing modern electric ranges.

Another power line will be built northerly along the Corona road to supply four residents with lighting, cooking and power service.

Service will be supplied on the Cordelia-Benicia highway to a customer who contemplates the installation of a pumping plant of sufficient size to irrigate 40 acres of alfalfa.

The extension of this line will also make available two sources of electrical supply for Benicia. It will likewise make service available for other prospective business in the territory.

Work is about to begin on the extension of power lines along the San Francisco boulevard and Salinas avenue to supply 60 horse-power in electrical energy for the Marin Crushed Rock Company.

The Daniels Contracting Company has opened the old San Francisco quarry at Point San Pedro and will require an initial installation of 50 h.p.

A new commutator has been installed on the No. 1 motor generator set at Sebastopol substation and the commutator on No. 2 set is being turned down. This improvement is being made to prepare for the summer railroad load.

The San Anselmo building inspector reports that building permits issued for the month of February amounted to \$26,550. Not such a bad showing, eh?

Extension of power lines along Marin avenue, Tamalpais way, Richardson

way and Oak avenue, is about to be made to supply five applicants with electric service.

The management of the Western Die Casting Company announces that it has received an order from the Automatic Lubricating Company of San Francisco for dies and 10,000 sets of castings for a high power grease gun.

The grease gun works with air pressure and the gun is equipped with a trigger that releases the grease when the operator wishes. The dies alone will cost \$6000 and the castings will amount to \$2500.

It is expected that other big orders will be received from the lower bay concern as the grease guns are said to be in big demand all over the country. This plant uses gas fuel exclusively.

More than a hundred residents of San Rafael, and motion picture critics from other districts were entertained by the Lilliputian Studios Company which recently took over the Beatriz Michelena studios here.

This new Marin industry uses "Pacific Service" power to the extent of 150 kilowatts.

Marin Municipal Water District is constructing offices, yard, shops and auto sheds on its property on Fourth street, San Rafael, near the commercial center of the town and in the vicinity of the courthouse.

The offices are housed in a two-storied reinforced concrete building faced with brick and terra cotta, with a tile roof. The structure is set back twenty-five feet from front and parked with lawns, pool and fountains. The office building occupies approximately one-half of the property and the other section entered from Fifth street is utilized for shop, watchman's and assistant superintendent's rooms, with bath, pipe fitting room, shops and meter rooms. The yard is laid out with sheds around property for company and other employees' cars. Except where garden spaces are laid out, the entire property is paved, and this paving is reinforced where heavy trucking is possible.

Water service is featured in fountains and pool in front set in lawns and with ever-bubbling drinking fountains for public use. The lighting is by flood light in front and electric heating is used throughout. H. G. R.

Sacramento Division

The River Farms Company of California is to plant at once six hundred acres of peach trees on its 3000-acre ranch in Yolo county, near Knights Landing.

Three hundred acres will be planted to clings and the other half to free-stones, according to R. H. Geer, ranch manager.

The trees are on the ground and as soon as Kerns and Egbert complete the leveling and laying out the land the trees will be planted. This will require 45,000 trees or 75 to the acre.

The River Farms Company has an orchard of 800 acres in prune and pear trees, and with this additional acreage will have one of the largest orchards in the State.

This project is proclaimed as the largest undertaking in the Sacramento valley and will put Yolo county as a noteworthy competitor with Sutter county in the peach growing business.

Construction of the long-talked of Yolo-Lake highway has been ordered by the State Highway Commission. The order embodies instructions to the state highway engineer to immediately begin work on the permanent survey of the route, a preliminary of which was made in 1915, and advertise for bids for the construction.

This means that the thirty-five-mile outlet from Lake county via Rumsey, Esparto and Woodland to the Sacramento Valley and Capital City will be under actual grading and building by the late part of this summer. Just how long it will take to complete will depend upon working and weather conditions in the mountains.

Practically everyone is familiar with the proposed road as it has been before the public eye for ten years. It may be stated, however, that the route laid out

in the preliminary survey called for a road along the banks of Cache Creek from Rumsey to Lower Lake, a distance of thirty-five miles.

The recent meeting of the State Highway Commission in Woodland, at which time they met with representative men of western Yolo and this territory, is said to have had much to do with their final decision. At that time the fact was forcibly brought to their attention that the Cache Creek road was the most feasible means of providing for the Lake county people. It was shown that such a highway would mean the possibility of cutting from twenty-four to forty-eight hours from the time now necessary to market the perishable crops of Lake county. At the present time Lake county is recognized as one of the most natural pear producing counties in the State and there are now 15,000 acres of this fruit either in bearing or being planted. Consequently it is seen that industrially the Yolo-Lake highway will serve more people and more products for its length and expense than any other road of like nature in the State.

Lake county has long been known as a county of beautiful and pleasant resorts and heretofore it has been so isolated that only after most weary journeying has one been able to reach them. This road will now throw them open to the public, and will serve them for pleasure to the advantage of the Lake county populace.

This road will make a short cut from Sacramento and surrounding territory to points in Mendocino and Humboldt county as well as provide a short cut to the resorts in Lake county over an easy grade. Present roads to Lake county from the east side are steep and indirect.

J. W. C.

San Joaquin Division

Organization of a new corporation to manufacture table and sorghum syrups and by-products in Modesto was announced recently through articles of incorporation of the Agricultural Industries Incorporated.

The new company will start with a capital stock of \$300,000 and will pri-

marily manufacture sorghum syrup from sorghum cane. Farmers in the vicinity of Modesto receive approximately \$6 per ton for the cane and can produce from fifteen to twenty ton per acre. The plant will employ approximately 100 men and will provide a market for hundreds of tons of sorghum.

An office building, twelve or fourteen stories high, to occupy the present site of the Stockton Bank of Italy building will be erected in the near future, according to announcement made by bank officials. The structure will occupy a lot 75x100 feet.

Calaveras county is looking forward to a revival in copper mining at Copperopolis that will bring prosperity to the entire county. The Calaveras Copper Company at Copperopolis has already put to work a large crew of men to prepare the property for extensive operation and at present it is anticipated that by May the big mine will be producing ore. Approximately 2500 h.p. in electric motors will be required for developing and hauling the output of this copper mine.

The new quarry at the Columbia Marble Company's property near Sonora in Tuolumne district is now being opened wide enough to permit the use of six drilling machines and the marble is improving in quality as work goes farther into the ledge.

The company now averages an output of ten carloads per month, and has orders for five carloads each to Los Angeles and San Francisco.

Construction on the first unit of the College of the Pacific near Stockton will be started immediately. It is planned to have the first buildings completed in time for the fall term, but all of the classes will not be removed to Stockton until the fall of 1924.

Oakdale announces that nearly six hundred cars of cattle and produce of various kinds were shipped out during the year 1922. The Oakdale Irrigation District, in which Oakdale is located comprises 70,000 acres, the soil being

particularly suited for almonds, figs, apricots, grapes and peaches. Approximately 5,000 acres are at present devoted to almonds, with excellent success. Of the 600 carloads of produce shipped in 1922, the figures show that 41 cars of almonds were shipped out during 1922.

A novel electrical heating and ventilating system has recently been installed in the new Richards theater in Modesto. Ventilation in this theater is provided by a fan capable of delivering 14,000 cubic feet of air per minute into the house. An electrical heating unit of 95 kw. capacity has been installed to heat the air delivered by the fan. In summertime the air will be cooled by washing with ice water. It is claimed that this is the first installation of its kind on the Pacific Coast, and perhaps in the world.

Property values in Stockton increased by \$1,541,524.00 during the past year, according to the Stockton city assessor's report.

It is announced that a big amusement park is to be built this summer in Modesto. The park is to be known as the "Garden of Allah," and in architecture and other features will follow closely the Oriental idea.

It is stated that more than \$400,000 will be spent by the company in building "The Garden of Allah." The big playground will contain most of the features to be found in successful parks of its kind in the country and will be built on a 21-acre tract.

Postal receipts showed an increase of 16.5 per cent in January over the figures of 1922, while Stockton bank clearings increased 17 per cent over the corresponding month of the previous year.

Application for electric service at Sonora has just been received from the Casa Madera Mining syndicate located at Mount Lewis, near Confidence, Tuolumne county.

Superintendent Schnoover now reports that his company has over 90,000 tons of ten-dollar ore in sight, and ar-

rangements are on foot for the installation of machinery for opening up the mine for big scale development. The initial installation will consist of 100 h.p. in motors to drive compressor and hoisting machines, and it is planned that a large stamp mill will be in operation before the year is out. Mining men of prominence throughout the district who have examined this property feel that the east belt of the mother lode has at last come into its own. L. J. N.

San Jose Division

New offices have been established in Burlingame and Daly City in order to meet the rapid growth of business in these localities. Mrs. A. V. Peralta has been appointed agent at Burlingame, and F. J. Summercamp at Daly City.

A subdivision has been installed at Millbrae with three 750 kva. transformers to give auxiliary service to the Market Street Railway at that point.

The building of an operator's cottage and substation are under way at Palo Alto.

The driving of piles has begun for the new \$914,000 tower line between Martin Station and Newark.

The construction of a six-inch high pressure gas line between Mayfield and Mountain View to serve 550 new applicants is now well under way. The Chamber of Commerce of Sunnyvale has 428 signatures to a petition to supply gas in that enterprising community and it looks as if it will not be long before a high pressure line will connect Mountain View with San Jose.

Application has been made by residents of Los Gatos, Saratoga and Milpitas for gas. The cost of installation,

however, will probably prevent serious consideration of this for some years.

A new demonstrator of gas and electric appliances for the Redwood District has been authorized and Miss E. C. Rountree has been given the appointment.

A. R. Albouze, industrial gas engineer, graduate of Stanford, has been employed to look after the large industrial gas prospects. He comes to us splendidly recommended.

Fresno Division

Construction of a three-story building to cost three hundred thousand dollars at Inyo and Van Ness is announced by K. Emerzian, builder, and E. Mathewson, architect, the building to house two stories of offices, with the lower floor devoted to store space. The building will front one hundred feet on Van Ness and 150 feet on Inyo, Mathewson announced.

The building will be of reinforced concrete and of grey tile construction, a commodious basement, built out to the sidewalk, to underlie the entire structure. The announcement of the building completes a circle of development in that section of the city, other buildings being constructed there or for which construction is being planned being the new Californian hotel, at a cost of nearly one million dollars, and the new home of the Black Package Company.

The old Trust Company building, on Mariposa and J streets is being wrecked to make room for the new fifteen-story building of the Fidelity branch of the Pacific Southwest Trust and Savings bank. This will be incomparably the tallest building in inland California. It will cost nearly a million dollars and will be 242 feet high, almost twice as high as the Griffith-McKenzie building.

The Fidelity bank has obtained an "L" shaped site at J and Mariposa, with an 80-foot frontage on J street and 150-foot frontage on Mariposa. The lot on Mariposa extends back 150 feet. The bank will occupy the ground floor of the entire site, giving 17,250 feet of floor space. Bank fixtures alone are expected to cost two hundred thousand dollars, making it one of the most attractive and up-to-date banks on the Pacific Coast. The building will have 208 offices, all facing outward. Two hundred tons of structural steel will be required in the construction. High speed elevators will be a feature. The R. F. Felchlin Company designed the building.

According to a survey recently made, Fresno has been absorbing nearly 150 offices a year, and the new building is expected to be filled soon after it is completed.

To meet the demands brought about by the rapid growth of Sierra Vista, a suburb of Fresno, over thirteen thousand feet of gas main will be installed in the near future, and construction of concrete sidewalks and curbs in about forty blocks at a cost of \$19,000 has been started by Billings & Meyering. The tract where the improvements will be put in is between Twelfth street and Barton avenue and between Tulare street and the Southern Pacific railroad. The contract has been awarded to E. A. McAlpine. Chamberlin and Vincenz are supervising engineers.

The job is declared to be one of the largest single jobs of sidewalk construction undertaken in Fresno. It involves the excavation of 6900 cubic yards of earth in grading the streets and parkings, the construction of 62,820 square feet of sidewalks and 12,400 lineal feet of curbing. The sidewalks will be five feet wide, the parking lawns eleven feet

and the streets twenty-eight feet. Trees and shrubbery already are being planted.

Another residential tract, connecting Arlington Heights and Sierra Vista, was opened by Billings & Meyering recently.

H. C. R.

San Francisco Division

The following installations denote an active month in the electric industry. They represent only a few of those secured by the Company.

The Provident Securities Company, 570 Market street, has signed for its new office building which consists of eight stores and is a six-story building. The connected load is 91½ h.p. and 50 kws. of lighting.

The Hayes Park Laundry situated at No. 17 Cayuga street, has shut down its steam plant and installed 50 h.p. to start with.

R. W. Joost, N. E. Golden Gate and Baker, has signed up for a new apartment house consisting of fifteen apartments having connected load of 309 h.p. This consists of air heating for each apartment, water heaters and electric ranges. This apartment house is electrical throughout and is the first apartment house to have all of its heating controlled from a central control which is located in the basement.

The California Academy of Sciences, located in Golden Gate Park, has installed an additional 63 h.p. for its new addition.

The industrial report for the month of February was very satisfactory. Among

the installations worthy of note was a 15 h.p. high pressure steam Kane boiler at the Alberta Candy Company, 1062 Folsom street. This firm, when opening up in business in San Francisco a few years ago made provision for the possible increase of another 15 h.p. boiler. The value of looking forward is apparent in this case as considerable work of installation was saved by the plant being in readiness.

The Owl Restaurant, 685 Sacramento street, installed a six-burner range, plates, griddle and hot water heater, having been convinced that gas was the ideal fuel, due to speed and cleanliness as well as convenience.

Mr. Klakehanka, 985 Howard street, candy manufacturer, has found gas the fuel to use, having installed same for two candy furnaces and dry room heater.

The universal favor with which gas-fired heating is being received at the hands of the public was again convincingly demonstrated during the month of February, and the number of installations made in homes, factories, office, and numerous other types of buildings, exceeded all expectations.

Among the central heating plants worthy of particular note are a No. 66-S Bryant boiler installed for the Goodrich Rubber Co., a large Rector system in the new quarters of the Winchester Company of America, and hot-blast warm air plants in the machine shops of the California Packing Corporation and Petry and Brandt.

From all indications more gas heating systems will be installed during the spring and summer months than at any like period during the Company's his-

tory. Instead of the usual dull season that is always expected with the coming of the warm months, an avalanche of inquiries are being received and the outlook was never so bright.

Mr. Compton, of the Compton Cafeteria, has decided to take on "Pacific Service" at his new place situated on the north side of Ellis street, west of Powell. His requirements will consist of 30 h.p. and 15 kw. in lighting. There will also be installed three 25 kw. baking ovens and one 20 kw. roaster.

F. T.

FROM THE GARAGE

Is it worth while keeping garage, repair shop, and vehicles clean and tidy? Yes.

It encourages care and efficiency in your drivers and mechanics.

No man can take pride in work that is smothered in dirt.

Dirt causes actual mechanical depreciation of machines and stock.

Dirt conceals wear and defects which will eventually result in costly breakdowns. Breakdowns mean poor service and loss of confidence.

Dirt encourages waste of all kinds—materials, fuel, parts, time.

Dirt advertises inefficiency. Cleanliness and smartness are good advertisements. New paint is a business-getter.

Big business can only be got through efficiency. Efficiency depends largely on the mental outlook and personal interest of your drivers. Drivers' personal interest is discouraged by dirt.

No man is proud to be seen on a dirty, decrepit-looking truck.

If you want them to worry about the condition of their vehicles and take the utmost care of them, give them something worth worrying about.

E. C. W.

Gas Men of the Pacific Coast Hold Mid-Winter Gathering in Oakland

By W. M. HENDERSON, Secretary, P. C. G. A.

The Pacific Coast Gas Association's first get-together dinner of the season was held in Oakland, Friday evening, February 23rd. It was scheduled as commercial men's night and the program was arranged with the idea of stimulating interest in the sale of gas service and appliances.

Approximately one hundred and fifty members were in attendance, with representation from San Diego on the south to Tacoma on the north, covering a front of fifteen hundred miles. When gas men journey a distance that represents practically one-half of the continent it would indicate that the Association's affairs have some attraction. The dinner itself allowed for nothing but praise. It started promptly on schedule and the courses were interspersed with enlivening "stunts." The decorations in the room were suitable to the occasion. At the entrance for the waitresses was displayed a large gas meter with the index so constructed that it could be operated by a motor with a switch at one of the tables. When the index whirled round a riot of noise was developed by the attachments on the dials. This stunt was pulled at each item of the program and when every course was served. An additional feature of the stage-setting was a reproduction of a small gas office. This occasioned considerable inquiry, and the mystery was not solved until the dinner service was over.

Following the feasting President F. S. Wade took charge of the program and presented an excellent statement of the Association's activities and plans for the coming year. He announced schedules for future gatherings as follows: May 25th, Tacoma; August 4th, Los Angeles; September 11th to 14th, inclusive, annual convention of the Association, Del Monte.

Mr. H. M. Crawford, chairman of the commercial committee, reported progress and promised something quite orig-

inal in the way of an attraction for the Del Monte convention, consisting of an illustrated talk upon "The Right and Wrong Way to Carry on Publicity in Business." The same committee is compiling a complete procedure for the training of young men entering the gas industry.

Mr. E. L. Hall, chairman of the technical committee, reported that a number of sub-committees were at work on various subjects which are of concern to the gas business and that a good program would be in order by convention time.

The membership committee reported forty new members secured during this early period of the year.

Mr. Robt. Hicks, director of the International Association of Specialty Salesmen and editor of the Salesmen Magazine, delivered a talk which would be an inspiration to any individual. His subject was, "Give to Get," and his own experience in life demonstrates the value of that doctrine.

With this part of the program behind him, President Wade then presented the main event. This relieved the minds of many of the guests who had been unable to fathom the purpose of the setting illustrating the country gas office. With this setting James Burns, premier salesman of East Bay division, Pacific Gas and Electric Company, presented an original sketch founded on the idea of "The Right and the Wrong Way to Handle a Prospect." He was assisted by Fred Mitchell and "Bill" Kelley. This little sketch made a big hit. There was plenty of comedy in it, and all through it ran very good points on selling and the value of gas service.

If enthusiasm is any indication of sincere interest, then the Pacific Coast Gas Association has the unqualified support of its membership. The meeting on February 23rd furnished sufficient evidence of that.

POWER

tttt

When I was born, the cataracts
Were still to the turbines screaming.
My father, the sunshine;
My mother, the snow
Upon the peaks of high romance.

What is my life?
Thrumming of insulators
On transmission lines
Swung over the chaos
Of ravines
I am the master of the thousand-tongued
Motors of clanging pumps
Stealing the secret tears
Of Mother Earth.

Mine are the shuttles of a thousand looms
Weaving
Eternally.
Mine the hammers of a thousand forges
Beating
Eternally.
Mine are the lives of a million men
Where the street-cars wander a web of rails.
My looms, my hammers, my cars
Beat and weave and build
The house of civilization.

Beat, oh hammers;
Prosaic hammers!
Clatter, shuttles!
Pistons, ring!
I am not yours—you are mine!
I am the waterfalls, the snow, the sun!

Where shall I end?
A thousand ships
Shall carry me across an hundred seas;
The filmy acres of the air
Carry me on, carry me on.

Space and eternity shall claim me for their own.
And when I die,
Turbines,
Looms,
Pumps,
Hammers,
Cars,
And the unheard words of man
Will lie beside me—
Dead!

Only the waterfall, the sunshine,
And the snow and wind,
And men as yet unborn
Can call me back.

—WHEATON HALE BREWER
Fresno, Cal., February, 1923

Pacific Gas and Electric Company Furnishes
"PACIFIC SERVICE"
 TO OVER 649,000 CONSUMERS OF
GAS ♦ ELECTRICITY ♦ WATER ♦ STREET RAILWAY
 1,715,959 Total Population Served in Thirty-six of California's Counties
 CITIES AND TOWNS SERVED BY COMPANY

	DIRECTLY		INDIRECTLY		TOTAL	
	No.	POPULATION	No.	POPULATION	No.	POPULATION
Electricity.....	170	1,117,541	61	156,411	231	1,273,952
Gas.....	61	1,134,687	2	8,600	63	1,143,287
Water (Domestic).....	18	61,719	8	15,488	26	77,207
Railway.....	1	65,908			1	65,908

Place	Population	Place	Population	Place	Population
¹ Alameda.....	28,806	¹ El Verano.....	400	² San Leandro.....	5,703
¹ Albany.....	2,462	² Emeryville.....	2,390	² San Lorenzo.....	500
¹ Alvarado.....	1,000	² Escalon.....	600	² San Martin.....	250
¹ Alviso.....	517	² Esparto.....	200	² San Mateo.....	5,979
¹ Amador City.....	377	² Farfax.....	250	² San Pablo.....	500
¹ Anderson.....	750	² Fairfield.....	1,008	² San Quentin.....	3,000
¹ Angel Island.....	500	² Fair Oaks.....	300	² San Rafael.....	5,512
¹ Antioch.....	1,936	² Fall River Mills.....	300	² Santa Clara.....	5,220
¹ Aptos.....	306	² Farmington.....	300	² Santa Cruz.....	10,917
¹ Arbuckle.....	900	² Felton.....	300	² Santa Rosa.....	8,758
¹ Atherton.....	500	² Folsom.....	2,000	² Saratoga.....	500
¹ Auburn.....	2,289	² Forestville.....	250	² Sausalito.....	2,790
¹ Barber.....	500	² Fresno.....	45,086	² Sebastopol.....	1,493
¹ Belmont.....	375	² Gilroy.....	2,862	² Shasta.....	200
¹ Belvedere.....	616	² Glen Ellen.....	1,000	² Shellyville.....	200
¹ Benicia.....	2,693	² Gonzales.....	500	² Sherman.....	250
¹ Ben Lomond.....	400	² Grass Valley.....	4,006	² Smartsville.....	300
¹ Berkeley.....	56,036	² Gridley.....	1,636	² Soledad.....	400
¹ Biggs.....	683	² Grimes.....	500	² Soquel.....	400
¹ Bolinas.....	200	² Groveland.....	500	² Sonoma.....	801
¹ Brentwood.....	400	² Guerneville.....	800	² Somora.....	1,684
¹ Broderick.....	700	² Hamilton City.....	250	² South San Francisco.....	4,411
¹ Burlingame.....	4,107	² Hammonton.....	500	² Standard.....	500
¹ Byron.....	350	² Hayward.....	3,487	² Stanford University.....	2,700
¹ Campbell.....	600	² Hercules.....	373	² Stockton.....	40,296
¹ Capitola.....	300	² Hillsborough.....	931	² Suisun.....	769
¹ Carmel.....	638	² Hollister.....	2,761	² Sunol.....	350
¹ Cement.....	1,000	² Honcut.....	500	² Sunnyvale.....	1,675
¹ Centerville.....	1,000	² Hughson.....	250	² Sutter City.....	250
¹ Ceres.....	637	² Hone.....	1,000	² Sutter Creek.....	920
¹ Chico.....	9,339	² Irvington.....	1,000	² Tehama City.....	196
¹ Colfax.....	573	² Jackson.....	1,601	² Tiburon.....	400
¹ College City.....	250	² Jamestown.....	750	² Tracy.....	2,450
¹ Collinsville.....	200	² Kennett.....	464	² Tres Pinos.....	300
¹ Colma.....	1,500	² Kentfield.....	500	² Tuolumne.....	1,500
¹ Columbia.....	200	² Kenwood.....	300	² Turlock.....	3,394
¹ Colusa.....	1,846	² Keswick.....	200	² Vallejo.....	1,254
¹ Concord.....	912	² King City.....	1,048	² Vina.....	300
¹ Cordelia.....	306	² Knights Ferry.....	200	² Vineburg.....	200
¹ Corning.....	1,449	² Knights Land.....	400	² Walnut Creek.....	538
¹ Corte Madera.....	607	² ing.....	400	² Warm Springs.....	200
¹ Cotati.....	200	² La Grange.....	200	² Waterford.....	250
¹ Cottonwood.....	500	² Larkspur.....	612	² Watsonville.....	5,013
¹ Coyote.....	200	² Lathrop.....	600	² Wheatland.....	435
¹ Crockett.....	1,500	² Lewiston.....	200	² Williams.....	650
¹ Crow's Landing.....	300	² Lincoln.....	1,325	² Willows.....	2,190
¹ Daly City.....	3,779	² Live Oak.....	300	² Winters.....	903
¹ Danville.....	400	² Livermore.....	1,916	² Woodland.....	4,147
¹ Davenport.....	300	² Lomita Park.....	600	² Woodside.....	300
¹ Davis.....	939	² Loomis.....	500	² Yolo.....	350
¹ Decoto.....	300	² Los Altos.....	500	² Yuba City.....	1,708
¹ Del Monte.....	300	² Los Gatos.....	2,317		
¹ Denair.....	200	² Los Molinos.....	200		
¹ Dixon.....	926	² Madison.....	300		
¹ Drytown.....	200	² Manteca.....	1,286		
¹ Duncan's Mills.....	200	² Mare Island.....	600		
¹ Durham.....	250	² Martinez.....	3,858		
¹ Dutch Flat.....	750	² Marysville.....	5,461		
¹ Eldridge.....	500	² Maxwell.....	500		
¹ El Cerrito.....	1,505	² Mayfield.....	1,127		
¹ Elmira.....	350	² Menlo Park.....	900		

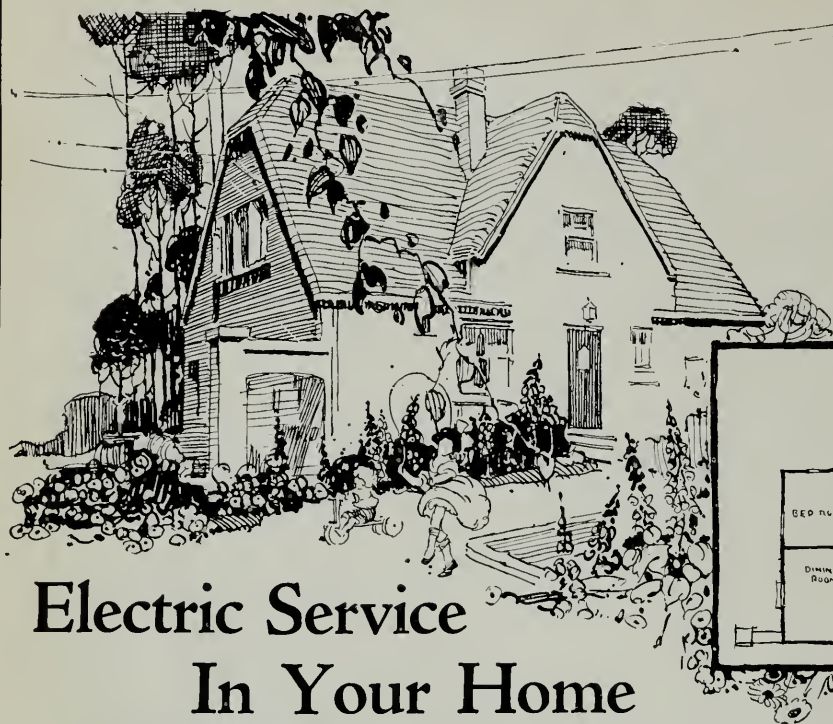
Unmarked—Electricity only.

¹—Gas only.²—Gas and Electricity.³—Gas, Electricity and Water.⁴—Gas, Elect. and St. Railways.⁵—Electricity and Water.⁶—Electricity supplied through other companies.⁷—Gas supplied through other companies.⁸—Water supplied through other companies.

"PACIFIC SERVICE FACTS"

During the year 1922 over 1,098,000,000 kw. hrs. of electric energy was sold. This amount of energy is equivalent to the effort of 3,660,000 men.

During the same year over 12,353,000,000 cubic feet of gas was sold. To store this amount of gas would require a tank having an area of 75,000 sq. ft. (an average city block 250' x 300') at a height of approximately 165 feet.



Electric Service In Your Home

OFFERS UNLIMITED CONVENIENCE and SATISFACTION

The "Mightiest Servant in California" is available to all "Pacific Service" consumers. It lights your home, cooks your food, and heats your water. It cleans your rugs, washes and irons your clothes. It keeps you cool in summer and warm in winter. The electric refrigerator preserves your food. For a modest expenditure and operating cost, a properly wired home, with electricity as the household servant, provides all the numerous comforts of modern life so necessary to the housewife.

Ask our nearest office about the correct wiring for these conveniences and the low electric rate applicable for this service.

PACIFIC GAS AND ELECTRIC COMPANY

A California company serving over 311,000 consumers of electricity.

P · G · and E ·

"PACIFIC SERVICE"



**ELECTRIFY
YOUR
HOME
COMPLETELY**
*ask us
ABOUT
IT*

PACIFIC SERVICE MAGAZINE AND YEAR BOOK

PUBLISHED MONTHLY BY THE PACIFIC GAS AND ELECTRIC CO. SAN FRANCISCO



Vol
14

APRIL 1923

No
11

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Pacific Service Magazine

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Year Book—1922



Executive officers of the Pacific Gas and Electric Company. At the top is President Wigginton E. Creed; next in order, reading left to right, are First Vice-President and General Manager John A. Britton, and Second Vice-President and Treasurer A. F. Hockenbeamer. Then comes Third Vice-President and Secretary D. H. Foote. At lower left is Assistant Secretary Charles L. Barrett, at lower right Assistant Treasurer Leroy Moore.

PACIFIC SERVICE MAGAZINE

VOL. XIV.

APRIL, 1923

NUMBER 11

Foreword



THE April issue of PACIFIC SERVICE MAGAZINE has, for some years past, presented to its readers the "Pacific Service" record for the particular year in the form of a digest of the reports presented at the annual meeting of our company's stockholders, held in the early part of the month at headquarters in San Francisco.

This year, for the first time since the inauguration of our monthly publication, the April number takes the form of a Year Book, in which the "Pacific Service" record for the past year is amplified into a presentation of leading features of achievement through which our company, in its various departmental activities of construction, operation, finance and organization, executive and administrative, feels reason to be proud of the past year's record and desires to congratulate its stockholders, its bondholders, its patrons and its friends, not forgetting its employees, thereupon.

So striking a departure from the regular order of things has been made with the full realization of what it involves. It is in accord with the company's well-established policy of laying its cards upon the table, so to speak, and inviting the most careful public scrutiny of each and every item in the accounting of its performance of a great public trust. The stockholders will, at the usual time, receive the annual report of the company giving full financial information concerning the company's affairs during 1922, but the company's administration desires in this Year Book to call particular attention to matters in which our company has contributed to an unusual degree, not only toward the advancement of the special industries with which its business is concerned but, also, toward the progress and prosperity of the commonwealth of the State of California.

The past year has been one of deep import to the gas and electric industries. Much has been accomplished during the year in the way of setting a new high mark, so to speak, for the two principal commodities which our company manufactures and distributes to its consumers. In certain matters of achievement our company has been "facile princeps" among the public utilities of the country, and in support of its claims to distinction in these respects detailed descriptions of, we venture to think, sufficiently interesting character will be found in the present volume.

Surely it is worth more than mere passing mention that, taking, first, the electric side, our company completed and placed in operation the largest hydro-electric power plant installed in the United States during the year, the thirty-third water power-plant built by the company and its immediate predecessors in interest during the past twenty-eight years, so that our company is now, with the exception of two Niagara Falls systems, the largest producer and distributor of water power on the American continent. We are proud to record that during 1922 our company completed and placed in operation the first electric transmission line designed and built to

operate at more than 200,000 volts, and that in the principle applied in its design and construction solution has been found for the technical and mechanical problems of high voltage transmission and regulation, leaving economic considerations the only limitations to distance. These principles were largely developed through research in which our company's technical staff was actively and prominently identified. Other achievements were accomplished, notably the reorganization and expansion of our interconnected electric transmission system which, together with the generating plants from which our transmission lines travel to the great centers of population in our "Pacific Service" territory, constitutes a veritable super-power system than which none of greater magnitude is known to the civilized world.

In the record of singular achievement gas, our old standby, holds its own with its younger rival. Not only have improvements in service been assured our company's consumers in all gas-served portions of "Pacific Service" territory through improvements and additions to generating equipment, gas-holders, mains, mechanical equipment, high-pressure distribution and every other detail of construction and operation, but notable advances have been made in the chemical science of gas through which our consumers will reap the benefit in a cleaner and purer quality of the commodity supplied. A particular instance is the new liquid purification process recently installed by our company for the first time in the history of the Pacific Coast.

The foregoing may be regarded as a compendium of accomplishment on the part of the operating departments. Behind this stands the company's great internal organization. Most of our readers who, like good citizens and true, have their own personal interests at heart, will be pleased to note from a perusal of this Year Book for 1922 many other matters in substantial support of our company's claim upon the public confidence, in the administration of its financial affairs, in its record of sales of stock at the maximum price obtainable at the minimum cost per share, in the activities of its sales department organization through which the year's record reveals an unusual increase in sales of both electricity and gas, in extensions of service accommodations everywhere throughout the interior sections of its territory, and in the general application of the motto "Service First" to the establishment of relations of mutual confidence and understanding between the company and the public it serves. In a word, in every branch of its activities, constructional, operative, executive, administrative, our company is shown to have been to the fore in the year 1922 as never before in its history since the organization which bears the trademark or slogan of "Pacific Service" was incorporated.

We may be pardoned for suggesting to our readers that this is no mean record to lay open to the public gaze. We of the "Pacific Service" family are proud of it, from the presiding officer down to the humblest in the ranks. And so, we present this our Year Book to be added to the imperishable records of our life's history, and in so doing extend the hand of honest and heartfelt congratulation to our stockholders, our bondholders, our patrons and ourselves.

The "Pacific Service" Record for 1922

Set forth in reports presented at the annual meeting of stockholders and in detailed description of additions and improvements of service both accomplished and projected

The "Pacific Service" record for 1922 was disclosed at the annual meeting of stockholders of the Pacific Gas and Electric Company, held at the company's headquarters in San Francisco on the afternoon of Tuesday, April 10th, 1923. At this gathering capital stock of the company to the amount of 903,589 shares was represented in person and by proxy; a most excellent showing, representing about 75 per cent of the total issue.

Reports upon the company's activities during the past year were presented by First Vice-President and General Manager John A. Britton and Second Vice-President and Treasurer A. F. Hockenbeamer. A special feature of the occasion was the address of President Wigginton E. Creed, in which he congratulated the company and its stockholders on the showing made during 1922 and upon the excellent prospects for the year ahead. In the evening following the meeting the president's address was broadcasted by radiophone to stockholders unable to be present at the meeting as well as to consumers of the company in various sections of the "Pacific Service" territory. The Mercantile Trust Company's radio station on the summit of Telegraph Hill was used for the purpose, and a special Pacific Gas and Electric Company program of entertainment was rendered, including several musical numbers, both vocal and instrumental. Every district office, from Redding on the north to Fresno on the south, and as far east as the Sierra Nevada range, had its own special gathering of invited guests, who listened with the keenest interest. That the experiment was successful was evidenced by the number of congratulatory messages that poured into headquarters at San Francisco that evening and the following day.

Mr. Creed's Message of Congratulation

Mr. Creed opened by announcing the reelection of the previous Board of Directors, as follows: Messrs. F. B. Anderson, Henry E. Bothin, John A. Britton, W. E. Creed, W. H. Crocker, F. G. Drum, John S. Drum, F. T. Elsey, D. H. Foote, W. G. Henshaw, A. F. Hockenbeamer, Norman B. Livermore, John D. McKee, John A. McCandless, C. O. G. Miller. It was announced, also, that the new board had organized by unanimously re-electing all the executive and administrative officers of the company. Mr. Creed went on to proclaim a continuance of the company's policy in aiding in every branch of its varied activities the progress and development of the vast section of California over which its operations extend.

"No one possessing even the tiniest spark of imagination can fail to see the vision of destiny of this great commonwealth," declared the company's president, with emphasis. "The eyes of the country, nay, of the world are turned toward our Western

empire and the march of countless thousands to the Land of Promise is under way."

The company was congratulated upon having gained during 1922 the unprecedented number of 46,297 new customers, or twenty new customers each hour of each business day of the year, *one new customer every three minutes*. Sales of electric energy exceeded the record for 1921 by 76,000,000 kilowatt hours and sales of gas exceeded 1921 by more than 870,000,000 cubic feet. Gross operating revenues, referred to by the president as "the money measure of growth," reached a new high mark of \$38,593,562, representing an increase over 1921 of \$1,654,088. Emphasis was laid upon the fact that this large increase had been obtained despite three consecutive reductions in gas rates during 1922, ranging in the aggregate from 12 cents to 17 cents per 1000 cubic feet, depending upon locality, and with lower electric rates in 1922 than were in force

throughout the entire twelve months of 1921. Of the company's operating gross revenue in 1922, 61 $\frac{1}{3}$ per cent had been derived from sales of electricity, 33 $\frac{1}{3}$ per cent from sales of artificial gas, while the balance of 5 $\frac{1}{3}$ per cent had been derived from the operation of the company's water properties and the street railroad system in the city of Sacramento.

"The year of 1922 was one of steadily improving business conditions throughout the state," announced President Creed. "Your company not only benefited in all branches of its service from better business conditions but contributed to bring about improved conditions by actively prosecuting its construction program, involving the continuous employment of thousands of people and the expenditure of millions of dollars for materials and supplies. Gross expenditures in 1922 for new plants and equipment to meet the growth of the state and to serve the people exceeded \$20,000,000, most of which was paid to California people and to California industries in conformity with the well established policy of the company."

The company's president enumerated some notable items on the list of our company's improvements and betterments of its physical properties. Prominent on the list, of course, was the completion and putting into operation of Pit No. 1, referred to as "the largest hydro-electric plant installed in the United States in the year 1922 and the 33rd water-power plant built by the company and its predecessors," and with that the completion and placing in operation of the first electric transmission line designed and built to operate at more than 200,000 volts. As of December 31, 1922, the company's hydro-electric generating system consisted of 28 water-power plants, with an aggregate installed capacity of 417,829 horsepower and 4 steam plants, with an installed capacity of 173,592 horsepower; a total installed capacity of 591,421 horsepower.

Concerning the gas business the record showed that in order to meet the demands of the company's consumers there had been completed and put into operation a new six-million cubic foot holder in Oakland, and construction commenced upon a ten-million foot holder in San Francisco. In addition, liquid purification plants, new

generators and compressors had been installed in several of the company's gas generating plants, and an accomplishment of unusual importance was the extension of high-pressure mains to suburban territory, notable in this line of achievement being the extension of gas service on the Marin peninsula from the plant in San Rafael to the outlying communities of Sausalito and Mill Valley. The company, as announced by its president, at the present time operates 18 gas generating plants, with an aggregate capacity of approximately 27 billion cubic feet of gas per annum, counting 20 hours manufacturing time per day.

"These plants," said Mr. Creed, "together with our transmission and distribution systems consisting of thousands of miles of cable, wires and pipes, and with other tangible physical properties, such as real estate, buildings, reservoirs, etc., are carried on our books at the conservative figure of \$200,000,000; but to purchase our real estate and reproduce these tangible physical plants and equipment today would cost considerably in excess of \$240,000,000.

"The gas and electric industries of California have carried their services to the people and have not compelled the people to come to them. No public utility on the American continent has as liberal an extension policy as the Pacific Gas and Electric Company. The result is that there is no gas company operating in the country that distributes artificial gas for as long distances or over as widespread outlying and suburban territory as does ours. The company has brought the advantages of metropolitan gas service to many suburbs and rural communities. To date, 49 incorporated cities are supplied with gas.

"In its electrical business the company serves 89 incorporated cities, 142 villages and towns and a suburban area of 35,000 square miles with a population in excess of a million and a half, occupying, approximately, 278,000 houses of which less than 2000 are unwired. In this territory there are 1500 manufacturing and industrial plants, virtually all of which are operated by electric power. During 1922 the company supplied 296,054 residential and commercial lighting consumers with a total connected load of 402,063 horsepower, an increase of 34,900 horsepower of connected load during the year. In 1922 the company

extended service to more than 1000 new agricultural consumers, with a total of 7,586 horsepower of connected load, and during the year supplied service to a total of 12,500 agricultural consumers, with a total connected load of 156,814 horsepower, using 108,000,000 kilowatt hours of electric energy. This service to the agricultural industry has involved the construction and operation of a total of 2400 miles of electric distribution circuits, of which 136 miles were installed in the year 1922, and has contributed largely to a marked increase in agricultural productiveness and profit and the development and reclamation of lands that could not otherwise be profitably cultivated."

Under the heading "Organization" President Creed spoke of 10,000 men and women in the company's employ during 1922, and stated that he regarded this great body of employes as one of the great business organizations of the country. Great as were the physical assets and properties of the company, the water power-plants, the gas plants, the distribution systems, the reservoir sites and lands, "a greater asset still is this highly trained, efficient organization of men and women, competent to operate and administer the properties of the company and serve the people of California."

The company's president went on to speak of the Pacific Service Employees Association, an organization of over 5000 employes, "which," declared Mr. Creed, "holds the profoundest respect and hearty goodwill and approval of the executives and directors of the company, because of its noteworthy accomplishments and high purposes and because it contributes to the advancement and happiness of employes of the company." Mr. Creed made special reference to the educational work carried on under the auspices of the Association, the various classes carrying an aggregate enrollment of 611 students, all employes of "Pacific Service." Along the same lines the Employes Welfare Committee, composed of executives of the company and representatives of the employes, came in for commendation, as did the Personnel Department, whose business it is to keep a record of all employes of the company, showing the special training, fitness and adaptability of each, and which had proved

a most efficient method of finding those employes entitled to promotions and in bringing about transfers of employes to positions to which they were best adapted.

In concluding his remarks, Mr. Creed addressed a special word to the real owners of the public utility of today, namely, the holders of its capital stock. He spoke as follows:

"The greatest revolution that has come about in the public utility companies in the last ten years is the change in the character of their ownership. Formerly they were owned by comparatively few persons. Today they are owned by the public generally. A careful estimate indicates that 475,000 people own the securities of the public utilities operating in California. The securities of your own company, Pacific Gas and Electric Company, are owned by 58,771 people, of whom 40,952 reside within the State of California. Of this number of 58,771 security-holders, 32,103 are bond-holders and 26,668 are stockholders. It was the Pacific Gas and Electric Company that originated the policy of customer ownership which has brought about this great revolution in the ownership of the public utilities of the country. In 1914 your company began its customer ownership plan, and in the nine years since the plan was inaugurated has sold to its employes and the people generally over \$35,000,000 of its preferred stock.

"No public utility in the country has ever approached the record of Pacific Gas and Electric Company in low selling cost per share. The total cost to the company, with absolutely all items of cost included for selling almost \$36,000,000 of its preferred stock, was 85.5 cents per share; and the cost to the company for selling the year 1922 over \$10,000,000 par value of its first preferred stock was 71.9 cents per share. In comparison, it may be noted that in a recent issue of a technical journal the selling costs of stock by ten other public utilities were given and the lowest cost per share attained by any of the companies in this list was \$1.94 per share.

"With this great company of stockholders and bond-holders gathered from all walks in life, most of whom live in California, your company stands today as a great enterprise of the people of California, owned and managed by Californians."

The Operating Record One of Exceptional Achievement

The report of Vice-President and General Manager John A. Britton was an interesting summary of the accomplishments of the various operating departments of the company.

Taking, first, the Department of Engineering the record showed that during the past year this department had made intensive studies of hydro-electric and transmission engineering, had studied and initiated 36 projects, involving sub-stations and power-houses, with connecting transmission and telephone lines, and had prepared plans involving 12 projects to be undertaken in 1923. In its division of electric distribution and steam engineering, the department has in its charge 31 studies of changes in sub-stations and outgoing lines, of which 22 are now in process. In its division of civil engineering, manifold problems had been taken up of a diversified character, including office buildings, warehouses, shops, garages, hydrographic studies of stream flow, water storage possibilities, structural designs of dams and penstocks, cottages at hydro-plants and sub-stations.

In the Department of Electric Construction and Operation the record of achievement for 1922 included the completion of Pit No. 1 hydro-electric plant, with an installed capacity of 93,834 horsepower, and

a tower transmission line from the Pit to the company's Vaca-Dixon sub-station, 200 miles away, of 220,000 volt capacity. In connection with this a new 110,000-volt tower line was built from Vaca-Dixon to the new Claremont sub-station, in the foothills back of Oakland, also a line of similar capacity between Vaca-Dixon sub-station and the Drum line of the South Yuba-Bear river development. Drum power-house, the main feature of the last named development, was given a third unit of 16,756 horsepower capacity.

In connection with the new service from the Pit, Claremont sub-station, with equipment of 50,000 kva. capacity, was placed in service, while the sub-station at Newark, on the southern end of the transmission chain, was strengthened by the installation of additional synchronous condensers. The Vaca-Dixon sub-station, previously referred to, has two synchronous condensers and three banks of 220,000-volt transformers having a capacity of 45,000 kva. On the San Francisco end of the transmission system the new Martin sub-station was placed in service with a capacity of 30,000 kva.

It has been already stated that the company now operates 28 water-power plants and 4 steam electric plants. Following is the list:

HYDRO PLANTS:	COUNTY	HORSE-POWER
Alta - - - - -	Placer - - - - -	2,681
Centerville - - - - -	Butte - - - - -	8,579
Coal Canyon - - - - -	Butte - - - - -	1,340
Coleman - - - - -	Shasta - - - - -	20,107
Colgate - - - - -	Yuba - - - - -	20,878
Cow Creek - - - - -	Shasta - - - - -	2,011
De Sabla - - - - -	Butte - - - - -	17,426
Deer Creek - - - - -	Nevada - - - - -	7,373
Drum - - - - -	Placer - - - - -	50,268
Electra - - - - -	Amador - - - - -	26,810
Fall River Mills - - - - -	Shasta - - - - -	1,274
Folsom - - - - -	Sacramento - - - - -	4,022
Hat Creek No. 1 - - - - -	Shasta - - - - -	16,756
Hat Creek No. 2 - - - - -	Shasta - - - - -	16,756
Halsey - - - - -	Placer - - - - -	16,756
Inskip - - - - -	Tehama - - - - -	8,043
Kilarc - - - - -	Shasta - - - - -	4,021
*LaGrange - - - - -	Stanislaus - - - - -	1,207
Lime Saddle - - - - -	Butte - - - - -	2,681
*Phoenix - - - - -	Tuolumne - - - - -	2,513

new holder at San Francisco. The total 12,353,849,000 cubic feet, distributed as sales of gas during 1922 amounted to follows:

Plant	Territory served	Sales in cubic feet
San Francisco, 2 plants - - - -	10 cities and suburbs - - - -	6,422,408,300
Oakland - - - - -	10 " " " - - - -	3,724,198,100
San Jose - - - - -	3 " " " - - - -	477,837,900
Fresno - - - - -	Fresno - - - - -	517,189,200
San Rafael - - - - -	7 cities " " - - - -	131,621,000
Santa Rosa - - - - -	3 cities " " - - - -	151,509,500
Napa - - - - -	Napa - - - - -	41,996,600
Vallejo - - - - -	Vallejo - - - - -	116,941,900
Chico - - - - -	Chico " " - - - -	51,187,400
Grass Valley - - - - -	2 cities " " - - - -	21,996,700
Sacramento - - - - -	3 " " " - - - -	557,789,000
Marysville - - - - -	2 " " " - - - -	52,966,800
Colusa - - - - -	Colusa - - - - -	17,616,600
Oroville - - - - -	Oroville - - - - -	23,692,400
Red Bluff - - - - -	Red Bluff - - - - -	12,060,700
Redding - - - - -	Redding - - - - -	16,780,200
Willows - - - - -	Willows - - - - -	16,056,700
Total Sales in Cubic Feet 1922 - - - -	- - - - -	12,353,849,000

To supply this amount of gas required 3,339 miles of gas mains of various sizes from 30 inches to 2 inches, both high and low pressure, operated at pressures varying from 70 pounds to 1-7th of a pound.

The increase in sales over 1921 was 870,297,900 cubic feet, 7.58 per cent.

Concerning the company's street railway system in Sacramento the record for 1922 was as follows:

Number of passengers carried.....16,075,231
Total number of car miles run..... 3,171,580

The Pacific Gas and Electric Company operates 8 water pumping stations with an aggregate capacity of 55 million gallons daily. These are located as follows: 3 in the City of Stockton; 1 in Livermore, Ala-

meda County; 1 in Dixon, Solano County; 1 in Redding, Shasta County and 2 in Willows, Glenn County. In addition, the company, by a system of irrigation ditches, reservoirs, flumes, etc., irrigates over 30,000 acres of land in Butte, Nevada, Placer and Tuolumne Counties, besides supplying water in those counties in a minor way for power. Following is the record for 1922:

Gallons of water pumped, 2,317,813,-795; daily average 6,350,000.

Another item in the company's system is steam for heating houses. The company operates 5 steam stations and serves 542 customers.

The total number of consumers served as of December 31, 1922 is as follows:

Electric - - - - -	311,615	Gain over 1921 - - - -	26,409
Gas - - - - -	316,268	" " " - - - -	18,998
Water - - - - -	16,985	" " " - - - -	823
Steam - - - - -	542	" " " - - - -	67
Total - - - - -	645,410		46,297

The total amount expended for labor during the year was \$14,368,541.43—an increase over 1921 of \$1,163,103.54.

The average number of employes in 1922 was 8,595, and the average daily wage paid to each employe, including executive officers, was \$5.57.

The total number of pensioners on the payroll at the end of the year was 66 and the amount expended for the year was \$42,795.29.

There are now 1083 employes of this company in possession of service badges; 523 of these have been with the company from 10 to 14 years; 327 from 15 to 19 years; 113 from 20 to 24 years; 48 from 25 to 29 years; 51 from 30 to 34 years; 13 from 35 to 39 years and 8 over 40 years.

Among the departments receiving special mention in Mr. Britton's report was the Sales Department, whose organization

was created in January, 1922, and whose activities resulted in a considerable increase in the sales of both gas and electricity during the year. To quote from Mr. Britton's report:

A most vigorous sales policy and advertising campaign was inaugurated at the beginning of 1922 and continued throughout the year. A comprehensive advertising campaign, designed to educate the public in the advantages and use of our commodities, was instituted at the beginning of the year and carried on consistently through the medium of the 175 newspapers and other publications issued in the territory served by the company. Eighty-six pieces of regular copy were prepared by advertising experts and published throughout the territory; and over two hundred special advertisements were prepared and published in miscellaneous and trade papers. That the sales and advertising campaigns were successful is shown by the increase over 1921 of 7.5 per cent in electric power sold and 7.6 per cent in gas sold."

Another important department of the company's organization specially mentioned was the Department of Public Relations and Service. "The company realizes," said Mr. Britton, "that the foundation of good public relations is good service, courteously rendered. That the policies and service of the company are very generally approved by the public, is attested by the fact that during the year 1922 the newspapers within our territory published in their news columns 126,455 column inches of matter favorable to the company, as against 4,126 column inches of unfavorable matter."

Mr. Britton's report announced the construction program for 1923 as follows:

The budgets of the electric, gas, water, street railway and steam divisions contemplate the commencement in 1923 of a number of important additions, betterments and new developments.

"Of these expenditures, the largest are the proposed developments involving an additional power-plant on the Pit river, to be known as Pit Plant No. 3, and the increase of the storage capacity of water back of Lake Fordyce by a new dam.

"The plant known as Pit No. 3, heretofore mentioned, and which will be com-

pleted some time during the year 1925, will have an installed capacity of 100,000 horsepower. All its entire output will be brought into the center of our system over the transmission line which is already built and in operation from Pit No. 1. The increase in capacity in water storage at the Fordyce Dam will amount to 26,700 acre feet, which by increasing the canal and penstock capacity supplying the Drum plant, and other alterations below Drum on Bear river, will add approximately 10,000 kilowatts to the present system's capacity.

"Work at the present time in progress which calls for the special attention of the electric department is the consideration of a double circuit steel tower line from Newark on the west side of the bay of San Francisco to Martin station. This will enable more power from the Pit river to be brought into San Francisco.

"In the gas department we are completing the construction of a 10,000,000 cubic foot gas holder, and its connections from the Potrero plant to the center of distribution.

"Among the more important improvements may be mentioned additional gas generators at San Francisco, San Jose, Sacramento and Marysville and the construction of a high pressure gas main from San Rafael to Petaluma, eliminating the Santa Rosa generating plant.

"In addition to the above, the building of the company's main office building will be commenced on property purchased during the year at the southeast corner of Beale and Market streets, in San Francisco. It is intended in this structure to house all head office activities, retaining the building at 447 Sutter street for the San Francisco Division. The new building will have an effective floor area of 183,985 square feet.

"The new eight story office building in Oakland, commenced last year, is nearing completion.

"Club houses at Electra, Drum and Pit power-houses have been completed, and cottages for employes erected at Hat creek No. 1, South Tower, Dixon and Newark."

Company's Financial Condition Excellent

The report of the Second Vice-President and Treasurer, Mr. A. F. Hockenbeamer, in setting forth the company's financial record for 1922, gave information of an unusually interesting character in which the company's stockholders were made acquainted with the disposition of the company's revenues. To quote:

"Your company is at this time owned by 26,668 stockholders. Twenty-two thousand of these, or more than 81 per cent, are residents of California. Including bondholders, the number of security-holders exceeds 58,000.

"The year 1922 was one of steadily improving business conditions throughout the company's territory. Nowhere else in the United States is electric energy so universally available, and so extensively and intensively used as in California. In fact, it is so closely related to our commercial and industrial activity that the volume of its production is a most accurate measure of our economic vitality. It is interesting, therefore, to observe, indicative of the year's general business trend, that while our electric sales in January, 1922, were actually less by more than 1,000,000 kilowatt hours than in January of the preceding year, by December they had increased by more than 76,000,000 kilowatt hours compared with the preceding year.

"Gross revenues increased by \$1,654,088, reaching a total of \$38,593,562. As the rates established for our services have a direct bearing on this item, it may be well to state at this point that in the electric department, rates remained practically unchanged during the year, and in the gas department three consecutive reductions were made, ranging in the aggregate from 12 cents to 17 cents per thousand cubic feet, depending upon the locality. Of these reductions 2 cents per thousand cubic feet represents the last vestige of the surcharges added during the days of the war, and the other reductions were justified by lower oil prices, the benefits of which were given to our gas customers within thirty days after oil prices were lowered, in conformity with the plan established by the Railroad Com-

mission under which gas rates are automatically adjusted to conform to increases or decreases in the market price of oil. Since this plan was adopted, about sixteen months ago, our customers have had the benefit of four reductions, ranging from 17 cents to 25 cents per thousand cubic feet.

"Among other measures of the growth of our business during 1922 are the increase during the year of 46,297 (7.7 per cent) in customers; an increase of 76,302,310 kilowatt hours (7.47 per cent) in sales of electric energy and of 870,297,900 cubic feet (7.58 per cent) in sales of gas.

"The next question of interest to our stockholders is what became of the thirty-eight and odd millions of dollars collected from our customers, and constituting the company's gross revenues. First of all, \$8,989,650 was paid out in wages to the men and women engaged in the purely operating activities of the company. This accounts for 23 cents of the customer's dollar, and does not include more than \$5,378,000 paid for wages of employees engaged in new construction, so that our total payroll last year exceeded \$14,368,000, all of which was disbursed to California wage earners. Next we paid \$5,043,430 or 13 cents of the customer's dollar, for oil used in the manufacture of gas and in the operation of our steam electric stations. Next we paid \$3,690,213, or 10 cents of the customer's dollar, for State and Federal taxes; next \$5,030,518, or 13 cents out of the customer's dollar, for materials and supplies, rentals, current purchased from other companies, and miscellaneous items; and, finally, \$4,265,263, or 11 cents of the customer's dollar, was set aside as a reserve for uncollectible accounts and to cover the cost of replacing wornout and obsolete machinery, appliances and other plant items. After deducting all of these necessary expenses, amounting to \$27,019,074, or 70 cents, out of every dollar charged for our commodities and services, there was left for the wages of the capital supplied to the business by the bondholders and stockholders, the sum of \$11,574,487. This is equivalent to only

5¾ per cent on the book value of the company's plants and properties, which at December 31st, 1922, stood at \$200,250,-877, and I may add in passing that it would cost today at least \$40,000,000 more than this to reproduce these properties. Adding \$611,043 of miscellaneous income, derived from other than our public utility operations, the surplus earned for the stockholders was \$6,587,159, or \$1,617,929 in excess of the preceding year. Out of this was paid in dividends on our first preferred 6 per cent stock, \$2,574,157, leaving a balance of \$4,013,002 out of which \$2,-500,407 was paid in dividends on the common stock at the rate of 5¼ per cent in cash and 2 per cent in common stock issued at par, leaving a balance of \$1,512,-595 to be added to the unappropriated surplus, after certain other additions and deductions not related to the year's business or to the ordinary operations of the company had been made.

"The sound position of all of our securities may be inferred from the fact that in 1922 we earned both our bond interest and preferred stock dividends two and one-half times, and earned something over 11 per cent on our common stock. Considering the low rates at which our commodities and services are sold to the public, these results to our security-holders reflect among other things the conservative financial methods pursued for a good many years in the upbuilding of the properties, until we

have a value today which gives exceptionally solid backing to all of our bond and stock issues.

"That the company has followed its customary policy of maintaining its properties in a high state of efficiency is indicated by the usual ample upkeep provisions. We expended for ordinary maintenance in 1922, \$3,117,530, and set aside \$3,602,199 as a depreciation reserve, making the total expended or appropriated from revenues for upkeep during the year, \$6,719,729, or 17.4 per cent of our operating gross.

"During the year, the net addition to the plants and properties account was \$17,-554,860. In the seventeen years since its organization, the company has increased its plant account by \$127,471,044 through new construction and the acquisition of additional properties. Of this amount \$60,934,880, or almost one-half of the aggregate for the seventeen years, was expended in the very brief period of the last four years.

"Throughout the year, and following its well-established practice, the company kept itself in a strong cash position and conducted all of its business on a cash basis. As a result of the prompt payment of bills, to mention only a minor item, a saving of \$50,550 was effected by way of cash discounts. At the close of the year the cash in the treasury amounted to \$5,684,212."



The Financial Side of "Pacific Service"

PRELIMINARY CONSOLIDATED INCOME STATEMENT

(Including operations of Mt. Shasta Power Corporation)

Year Ended December 31st

	1922	1921	Increase	Decrease
Gross Earnings, including Miscellaneous Income	\$39,204,605	\$37,509,707	\$ 1,694,898	.....
Maintenance, Operating Expenses, Rentals, Taxes (including Federal Taxes) and Reserves for Casualties and Uncollectible Accounts	23,416,876	24,279,085	.....	\$ 862,209
Net Income	\$15,787,729	\$13,230,622	\$2,557,107	.....
Net Interest Charges.....	5,148,614	4,797,782	350,832	.....
Balance	\$10,639,115	\$ 8,432,840	\$ 2,206,275	.....
Bond Discount and Expense.....	449,757	394,532	55,225	.....
Balance	\$10,189,358	\$ 8,038,308	\$ 2,151,050	.....
Reserve for Depreciation.....	3,602,199	3,069,078	533,121	.....
Balance to Surplus.....	\$ 6,587,159	\$ 4,969,230	\$ 1,617,929	.....
Dividends Paid on Pref. Stock (6%)	2,574,156	2,132,283	441,873	.....
Balance	\$ 4,013,003	\$ 2,836,947	\$ 1,176,056	.....
Dividends Paid on Common Stock	(7 $\frac{1}{4}$ %) *2,500,407	(5%) 1,700,883	799,524	.....
Surplus Unappropriated.....	\$ 1,512,596	\$ 1,136,064	\$ 376,532	.....

* Dividends paid on Common Stock in 1922 as follows:

First three quarterly payments at rate of 5% per annum.....	3 $\frac{3}{4}$ %
Last quarterly payment at rate of 6% per annum.....	1 $\frac{1}{2}$ %
Stock dividend payable in Common Stock.....	2 %
Total	7 $\frac{1}{4}$ %

The Company's investment in plants and properties at December 31, 1922, stood at \$200,250,877, an increase within the year of \$17,554,860. In the past ten years the cost of plant additions and the value of other net tangible assets has increased \$90,665,567. This exceeds by \$54,863,667 the total increase during this ten-year period in the par value of all bonds outstanding, and leaves a margin of \$13,648,394 over and above the par value of all Preferred Stock issued during this period.

In 1912, 25.9% of gross operating revenue was required for annual interest on all outstanding bonds, and in 1922 only 15.3% was required. Ten years ago 61.0% of the Company's net was absorbed in bond interest, as against 38.0% in 1922.

The Company started the new year with 46,297 more customers on its books than it had a year ago, and the year 1923 is starting out even better than 1922, no less than 11,545 having been taken on in the first quarter of the current year, compared with 5,782 in the first quarter of 1922. The total number of customers served at the close of March, 1923, was 656,809.

PACIFIC GAS AND ELECTRIC COMPANY
and
MT. SHASTA POWER CORPORATION

CONSOLIDATED BALANCE SHEET

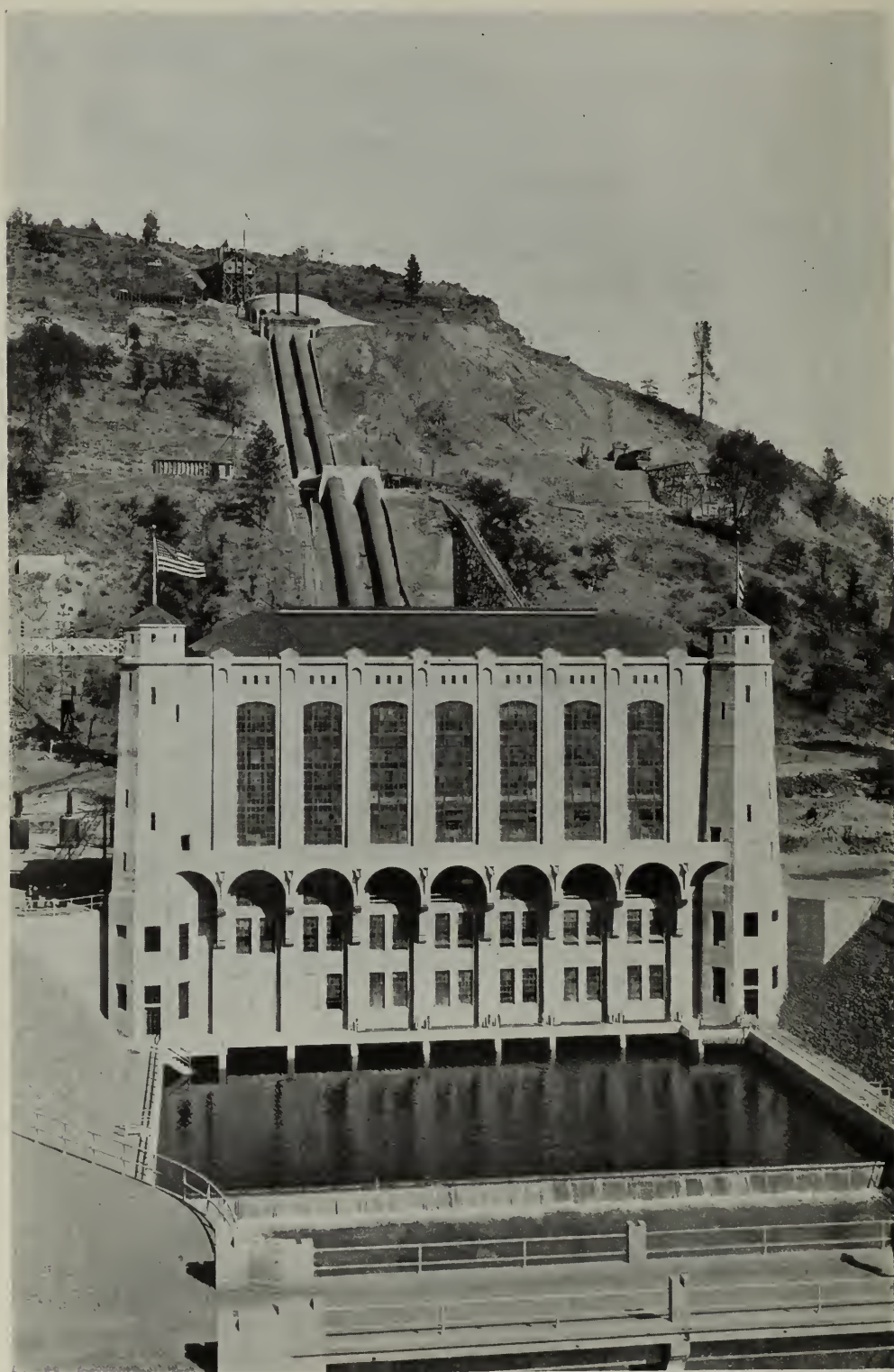
December 31, 1922

ASSETS

CAPITAL ASSETS—Plants and Properties.....		\$200,250,877.54
DISCOUNT AND EXPENSES ON CAPITAL STOCK ISSUED		8,326,097.24
INVESTMENTS		1,680,343.53
TRUSTEES OF SINKING FUNDS:		
Cash	\$ 60,747.28	
Interest accrued on bonds held in sinking funds	115,323.59	176,070.87
CASH IN HANDS OF TRUSTEES—For redemption of 7% Gold		
Notes		78,780.00
CURRENT ASSETS:		
Materials and supplies on hand and in transit.....	\$3,709,041.49	
Installments receivable from subscribers to first preferred stock.....	1,155,695.66	
Bills receivable	\$ 268,472.16	
Accounts receivable	3,805,194.71	
	\$4,073,666.87	
Less—Reserve for bad debts.....	191,875.10	3,881,791.77
Cash		5,300,715.85
Construction funds in hands of trustees of first and refunding		
mortgage		383,496.20
Interest accrued on investments.....	6,143.46	14,436,884.43
DEFERRED CHARGES:		
Discount and expenses on funded debt.....	\$5,734,200.25	
Unexpired taxes and undistributed suspense items	93,243.18	5,827,443.43
		\$230,776,497.04

LIABILITIES

CAPITAL STOCK OF PACIFIC GAS AND ELECTRIC COMPANY:		
Common	\$34,684,034.00	
First Preferred (including stock subscribed for but not fully		
paid and issued)	51,178,272.50	
Original Preferred	37,100.00	\$ 85,899,406.50
CAPITAL STOCK OF SUBSIDIARY COMPANIES not held by the		
P. G. & E. CO. and unpaid dividends thereon.....		20,583.54
BONDS		111,700,700.00
CURRENT LIABILITIES:		
Accounts payable and unaudited bills.....	\$ 1,886,976.17	
Drafts outstanding	592,011.19	
Meter and Line Deposits.....	699,091.40	
Unpaid coupons	303,265.00	
Interest accrued but not due.....	1,600,105.98	
Taxes accrued but not due.....	2,101,629.88	
Dividends declared	520,208.05	7,703,287.67
RESERVES:		
For Northern California Power Company Consolidated, plant		
adjustments and accrued depreciation.....	\$ 1,648,265.73	
Depreciation	13,049,320.57	
Insurance and casualty funds.....	341,410.88	
Reserve for amounts charged during 1913, 1914, 1915, 1916 and		
1917 to consumers in excess of rates allowed by City Ordi-		
nances	1,820,134.09	16,859,131.27
SURPLUS:		8,593,388.06
		\$230,776,497.04



Pit No. 1 power-house is an imposing structure, Gothic in its architectural design

*Leading Features of Achievement By Which
"Pacific Service," During the Past Year,
Aided Materially in the Development
and Prosperity of the Territory
Covered By Its Operations*

Pit River Development

The Pacific Gas and Electric Company has been the pioneer in hydro-electric development of the West. The first hydro-electric power plant constructed by the predecessors of the Pacific Gas and Electric Company dates from 1895. This was the Folsom power-house on the American river. Its builders not only pioneered the generation of electricity by



Folsom power-house, the pioneer of what is now "Pacific Service."
Constructed in 1895

water-power for commercial purposes but succeeded in transmitting the energy generated a distance of twenty-two miles to Sacramento at the then record pressure of 11,000 volts. This was the first important step in the industrial and commercial development of the West, and the nucleus of a hydro-electric generating and distributing system that has today developed into the greatest in the world.

The Pit river development is the latest hydro-electric achievement of "Pacific Service." Representing, as it does, the most advance type of modern electric power development, it has attracted the attention of the engineering world. This development

had its origin in the purchase by the Pacific Gas and Electric Company, in 1917, of the properties of the Mt. Shasta Power Corporation, whose activities were centered upon a hydro-electric project on Pit river in Shasta County, at a point known as the Big Bend. The extraordinary value of the Pit as a power stream had been recognized by engineers for some time previous. The river itself has its main source in several large underground springs amid the lava beds of Northeastern California at the southern end of the Cascade range. It is distinct from other streams that take their course oceanward in that it rises east of the range, and it is due to the lava formation that its

progress is unchecked. In itself it is a stream of moderate flow capacity, but it gains in volume through the liberal contributions of several important tributaries, notably, Fall river, Hat creek, Burney creek and Montgomery creek, so that it acquires a volume reaching some 2500 cubic feet per second at the point called Big Bend, before referred to, where the last of a chain of Pit river water-power plants is marked for construction. In a country of the peculiar geological formation referred to the waters of these streams are stored in great reservoirs beneath the surface of the earth, and the result is an even stream flow varying so slightly from season to season and year to year as to be scarcely perceptible.

Such water sources are, of course, ideal for power purposes. The constant flow assures ample water at all seasons of the year without the necessity of constructing large and costly storage reservoirs such as are required in other sections of the State.

Following its first purchase, the Pacific Gas and Electric Company acquired further rights on two of the tributaries of the Pit already mentioned, Hat creek and Fall river, and the Company's engineers prepared plans for a chain of power-plants with an aggregate installed capacity of approximately 600,000 horsepower, taking advantage of the drop of 2100 feet from a point on Fall river near its junction with the Pit to the Big Bend, a sixty-mile stretch of river.

Active work was commenced in 1920 upon two moderate sized plants on Hat creek, not far from that stream's junction with the Pit, and in the fall of the following year these two plants, with a combined generating capacity of 33,500 horsepower, were completed and placed in operation. Then came Pit No. 1, the first of the big chain of projected developments. This was accomplished by the diverting of the waters of Fall river, at a point in Fall river valley, about a mile above the town of Fall River Mills, where that river pours into the Pit, and by means of a tunnel approximately two miles in length conveying the water through the intervening hillside to a point in the Pit river canyon 454 feet above the stream on the bank of which was marked the site for a power-house to be equipped with electric generating machinery of 93,800 horsepower capacity.

The big job involved, among other engineering features the construction of a diversion dam on Fall river, from which an intake canal 1000 feet in length and of 1800 cubic feet per second capacity, was constructed to carry the water to the east portal of the tunnel, which in exact measurement is 10,160 feet in length, 14 feet 3 inches high, about 13 feet wide at the line where arch and sidewalls meet and 11 feet wide at the base. This took a little over a year to bore. At the west portal, overlooking the Pit river, the construction

work included a large reinforced concrete tank, or surge chamber, about 55 feet high and of 60 feet inside diameter, from which two steel penstocks, 1357 feet in length, each of 10 feet 9 inches diameter at the intake end and 8 feet at the power-house end were laid upon the hillside to convey the water to the wheels. The power-house was erected on a piece



Snow towers on the Pit River transmission line near the highway

of level ground within reach of the river. It is a handsome reinforced concrete building of heavy structural steel frame 137 feet long, 45 feet wide and 67 feet in front elevation. Considerable architectural skill was employed in its design, which is Gothic in character. From this power-house a tail-race about 1200 feet in length returns the water to the river. The generating equipment for the power-house consists of two 40,000 horsepower vertical turbine units direct-connected to two 35,000 kilowatts, 11,000-volt electric generators.

Transmission at 220,000-Volt Pressure

Concerning transmission. In connection with the completion of the Hat creek plants there was constructed a pole line from the developments to Cottonwood, a distance of about sixty miles across country, at which point was effected a tie-in with the general "Pacific Service" distributing system. From the larger developments on the Pit river, however, a double-circuit steel tower transmission line was constructed to carry the electric energy generated at the plants a distance of over 200 miles to a new distributing substation the Company erected in the Vaca valley, near the town of Vacaville. This transmission line was distinguished above all others in the "Pacific Service"

system in that it was constructed for an ultimate carrying pressure of 220,000 volts, the highest transmission voltage thus far proposed for actual construction.

This transmission problem, involving the conveyance of energy an unusually long distance without serious loss, was at first regarded as a stumbling block in the way of Pit river development work. "Pacific Service" engineers studied long and hard before they arrived at what may be accepted as a definite solution. It is now announced that at 220,000 volts a maximum of 140,000 horsepower may be transmitted 200 miles with a loss of not over 8 per cent; furthermore, the capacity of one 220,000 circuit is four times the capacity of one 110,000 circuit, while the losses and costs are about one-half. The distance to which energy may be transmitted at 220,000 volts is not limited to any given number of miles but depends on the economic question of how much may be expended upon the transmission of energy to a given market.

The big substation in Vaca valley was given the name of Vaca-Dixon. In this the main building houses two 20,000 kva. synchronous condensers whose business it is to regulate the voltage of power received from the Pit. The building itself is an adaptation of Spanish renaissance design and consists of a main portion 43 x 128 feet, one story high, with rear wing 38 x 91

feet, two stories high. The main transformers, high tension oil and air switches and high tension busses are installed outdoors. Seven 16,667 kva. transformers are installed to reduce the voltage of the power received at the station from 220,000 to 110,000 volts for re-transmission to other distributing substations at central points in the "Pacific Service" territory.

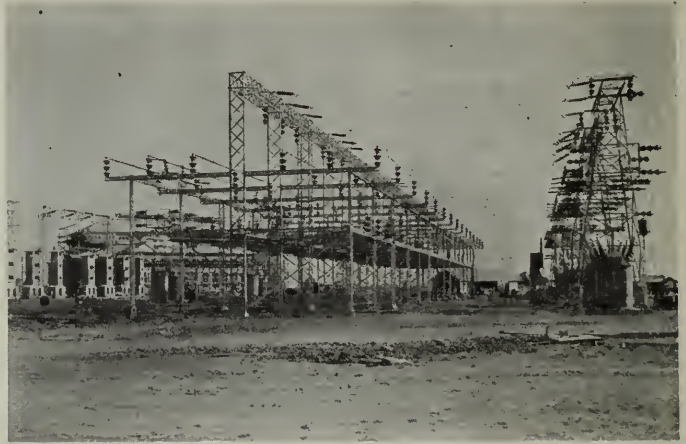


Distance view of Pit River double circuit steel tower transmission line

All this construction work was accomplished with record speed. On Saturday, September 30, 1922, less than two years after the turning of the first spadeful of earth, Pit No. 1 development was placed in operation. It was a gala day for "Pacific Service." The opening ceremonies were conducted under the auspices of the Chambers of Commerce of Sacramento, Redding and the Northern California Counties Association, and a dual celebration was held. Despite the comparative inaccessibility of the location a concourse of between 600 and 700 people gathered in and around the handsome power-house at Pit No. 1 when Miss Isabel Creed, daughter of the president of the Pacific Gas and Electric Company, closed the switch that set the first generator in motion and dispatched the precious energy on its way. A simultaneous celebration was held at Vaca-Dixon substation, where an assemblage of between 5000 and 6000 souls witnessed the arrival of the first kilowatt of electric energy at the end of its 200-mile journey from the Pit.

This achievement, great as it was, does not close the 1922 record. It has been stated that various large substations were required to receive the electricity from the Pit, relayed, so to speak, from Vaca-Dixon, and redistribute it among the various centers of population around San Francisco bay. October 23, 1922, marked the opening of Claremont substation, in the foothills back of Oakland, where the electric energy coming in from the Pit river by way of Vaca-Dixon substation and Cordelia and crossing San Francisco bay over the Straits of Carquinez is received and redistributed at lower voltage over the net work of wires that serve Oakland, Berkeley, Alameda and the surrounding territory.

Claremont substation has a marvelously picturesque setting. It stands upon an eminence overlooking Lake Temescal and it is the last word in modern electrical equipment. As has already been recorded concerning Vaca-Dixon substation, bus structures, oil switches and transformers are in



Vaca-Dixon sub-station has an imposing array of transformers, switches and bus structure installed in the open

full view out of doors. Grading for this substation was started October 24, 1921, so that within one day of a year this important piece of construction work was started, completed and put in operation. The opening ceremonies were conducted under the auspices of Oakland Electrical Club and Mayor Davie and other officials of Oakland's city government took active part.

Another important substation in the "Pacific Service" system is that at Newark, Alameda County, which was built three years ago as a transformer and switching station to distribute power from our South Yuba-Bear River Development plants and, also, from the plant at Electra on the Mokelumne river near Jackson, Amador County, to the southern portion of "Pacific Service" territory.

Newark substation took the place of the old one at Mission San Jose from which connection was made into Oakland by means of a line over the Southern Pacific right of way. There is now a direct high-tension line from Newark into Oakland, thus completing the "Pacific Service" transmission chain. The opening of the Pit plant has necessitated an increase of equipment in this, as in other distributing substations. Two additional synchronous condensers have been installed and there are under construction two additional 100 kv. circuits to Martin substation in South San Francisco.

Martin substation is a new one, taking the place of the old Martin substation that

was built many years ago to take care of the power transmitted from the mountains by way of Alviso and the San Francisco peninsula. The equipment of the new station

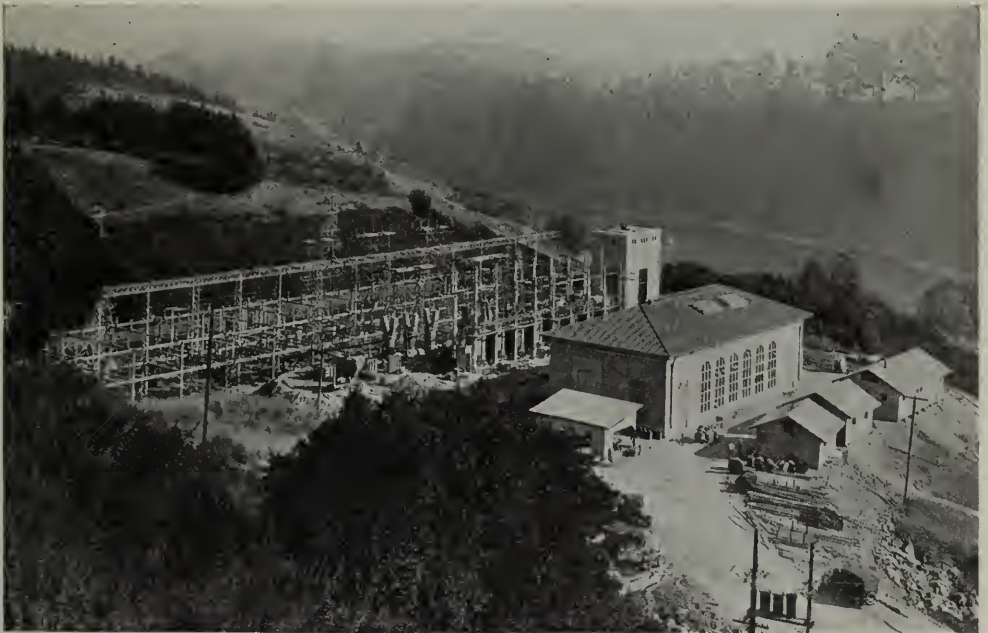
is of the most modern type. It is of 40,000 kva. capacity at the present time and future plans call for enlargement to actually double that figure.

Pit No. 3 Next in Order

Announcement was made in our March issue that orders had been given to proceed with Pit No. 3 development, in order to provide against the constantly increasing demand for electric power, which our engineers calculate increase at the rate of $7\frac{1}{2}$ per cent per annum, or an increase of 120,000,000 kilowatt hours a year.

The beginning of this development will be marked by a diversion dam on the river at a point about two and one-half miles below Peck's bridge, on the highway between Burney and Bartle, about twelve miles down stream from Pit No. 1 plant. The work involves the construction of a diversion dam about 125 feet high that will back the waters of the Pit river up ap-

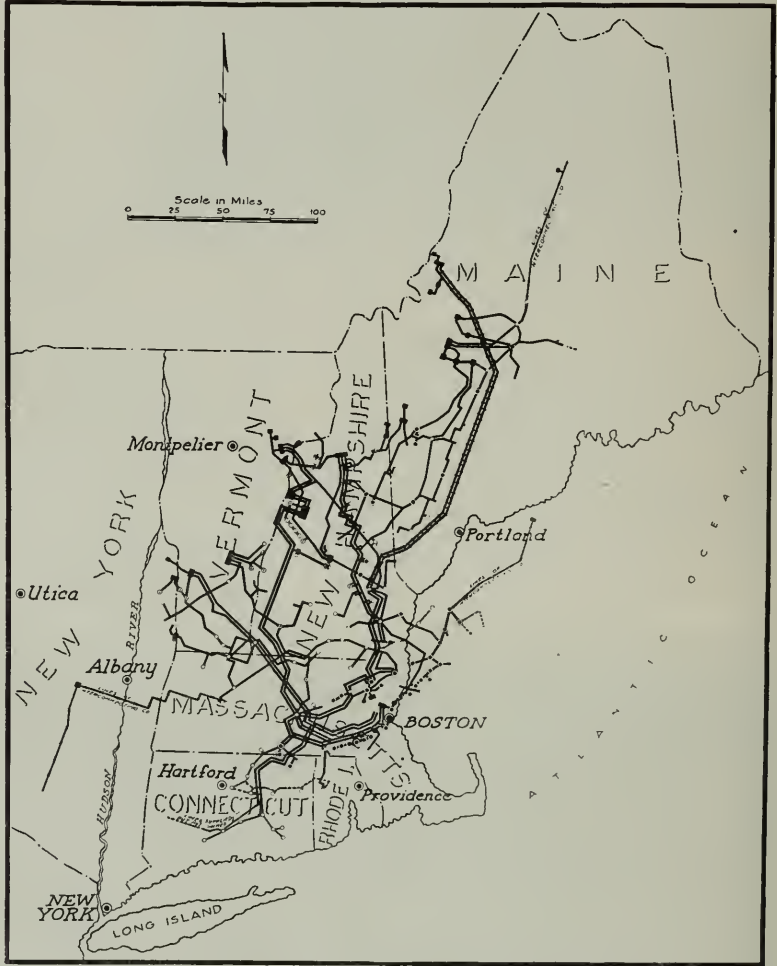
proximately eight miles, and by so doing will save something like fifteen miles of conduit which otherwise would have been necessary to construct in order to bring the water to the entrance of the tunnel. From this dam, then, the tunnel will be constructed some 22,700 feet in length and of 3000 cubic feet per second water flow capacity. The outlet of the tunnel will be at a point about 300 feet above the river and from that point the water will be sent surging down the penstocks into the power-house to be constructed on a wooded flat on the river bank. The equipment of the power-house will be, in round numbers, 100,000 horsepower in installed capacity of generating apparatus.



Claremont, the show-place among "Pacific Service" high-tension distributing sub-stations by reason of its setting on the border of Lake Temescal

The "Pacific Service" Super-Power System

The "Pacific Service" electric transmission network now consists of 334 miles of tower line constructed for 220,000 volt operation, 568 miles of 110,000 volt tower line, 1,955 miles of 60,000 volt tower line and pole line, and 228 miles of 30,000 to 20,000 volt pole lines. Feeding into this network are 28 hydro-electric plants operated by Pacific Gas and Electric Company having an aggregate installed capacity of 311,700 kilowatts, ten hydro-electric plants owned by other electric utilities from which our company purchases power, the installed capacity being 178,875 kilowatts, of



The extent of the "Pacific Service" electric transmission system may be gauged by a glance at this map which shows the system superimposed upon the New England States

which a maximum of 50,000 kilowatts is available to the company in emergencies, and four steam-electric plants operated by our Company, having an aggregate capacity of 129,500 kilowatts, the grand total of plant capacity available to supply the network being 497,200 kilowatts.

Supplied from this super-power system are 259 substations of Pacific Gas and Elec-

tric Company, with a total transformer capacity of 774,829 kilowatts. Through these substations are supplied 311,615 consumers of electric service, having a total connected load of 1,110,679 horsepower. These consumers are located in 89 incorporated cities, 142 towns and villages, while rural sections served aggregate 37,000 square miles. In addition, energy is

supplied to thirteen companies and five municipally-owned systems for resale in territory not directly served by the company.

This, in bare outline, is Pacific Gas and Electric Company's super-power system. The problems of operating it center around the primary fact that while the Company has undertaken to supply 311,615 consumers with 1,110,679 horsepower, which may be taken at will from its lines, it has only 311,700 kilowatts of water power-plants and 129,500 kilowatts of steam reserve from which to produce it, while other companies, in emergencies, may be expected to supply not to exceed 50,000 kilowatts. Some of these plants, during the rainless period of the year, derive their power from water stored in reservoirs so remote in the mountains that it requires twenty-four hours for it to reach the water wheels. Some of them have enough reservoir storage at the head of their penstocks to carry them for several hours at full load and thus have considerable peak capacity, and still others have neither forebay nor seasonal storage and can only use the natural flow of the streams on which they are located.

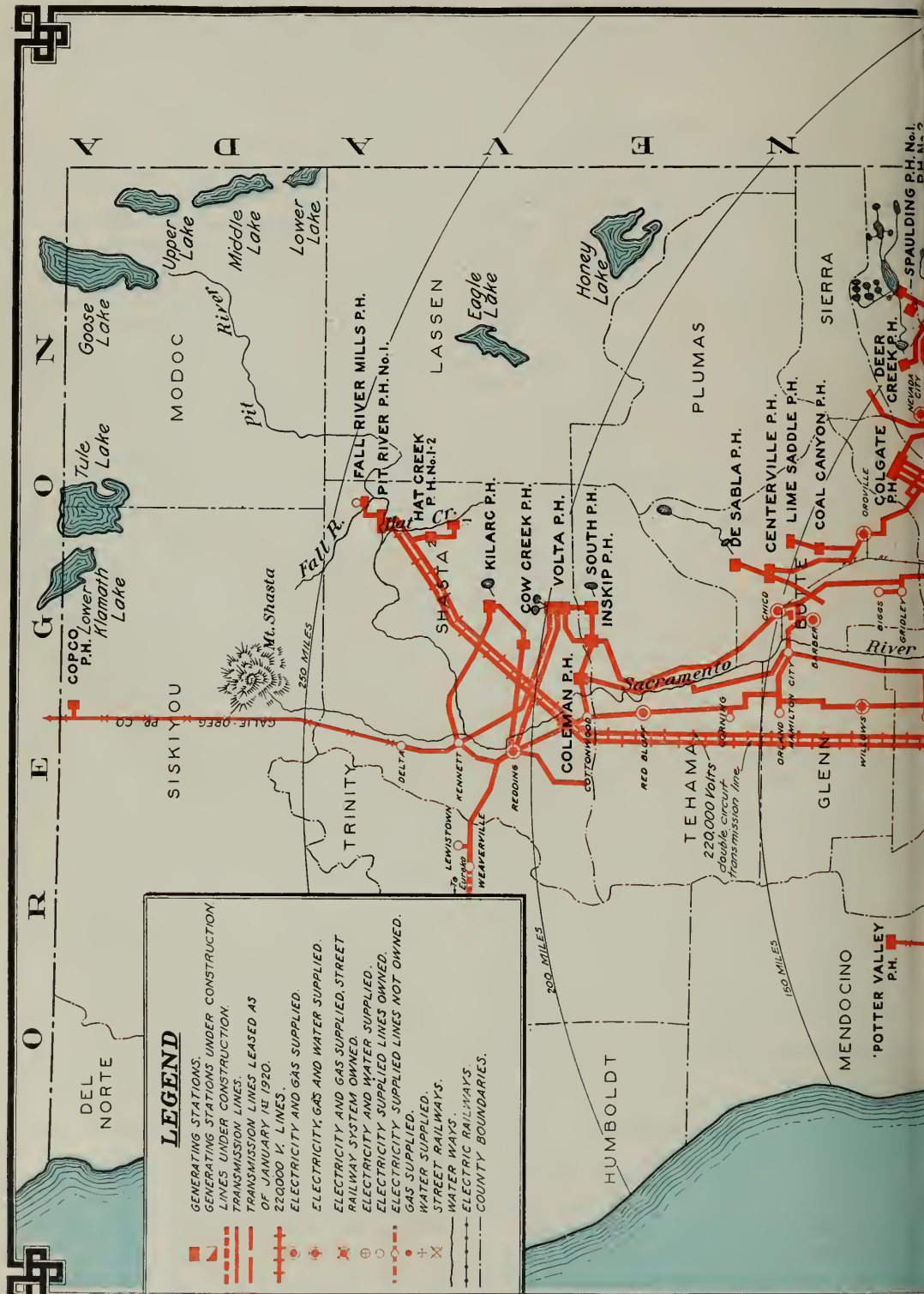
Under these conditions service can be ensured only by placing all the operations under the direction of one man centrally located, in the possession of information necessary to enable him to decide instantly just what to do in any emergency, and in direct communication with every reservoir, canal, generating unit, substation and line switch on the system. This is effected by means of a telephone system consisting of 1,965 miles of circuits on transmission lines, 370 miles on private rights of way, 390 miles along canal lines and into remote reservoirs, and 660 miles leased from telephone companies for exclusive use of the Company to reach strategic points at load centers not in proximity to the high tension lines, a total of 3,385 miles of telephone circuits. The autocrat of the super-power system, the load dispatcher, therefore, directs the operation of thirty-two power plants, with eighty-two generating units, forty-nine reservoirs and

forebays with a capacity of 192,196 acre feet, 384 miles of power canals, 3,535 miles of transmission circuits sectionalized by more than 1,600 switches and 259 substations. At his order water is released from reservoirs, power-plants started or stopped, and loads switched from one plant or line to another, as the needs of service require. A word from him will call a thousand men from their beds in the small hours of the night to restore service over a storm-harried valley; another will start a crew on skis up a snow-covered canyon to rebuild a flume swept out by an avalanche.

To avoid congestion and minimize the issuance of orders the system is divided into twenty-six switching centers with definite territorial centers, each reporting to and directed by the central load dispatcher. In the event of unusual trouble or when the routine system of switching is inadequate the load dispatcher takes direct command and issues the orders necessary for the resumption of service. A total shut-down of the system has never occurred.

Another, and by no means unimportant, function of the load dispatcher more clearly relates to management than to the super-power system. From every point throughout the system information of importance and of use in operation or in the perfection of service is collected and passed on through the switching centers to the central load dispatcher's office where it is edited, boiled down and summarized into a daily service report covering the twenty-four hour period ending at midnight, and placed on the desks of the executive and management officers at 8:30 on the following morning. Each executive has, therefore, upon his arrival a concise report of power-plant output and condition, peak demand, water storage, canal flow, stream gaugings, depth of snow, and weather conditions throughout the system.

Such is the power system of Pacific Gas and Electric Company and its plan of operation—the first and today, the greatest super-power system in existence.





South Yuba—Bear River Development

Amid the snow peaks of the Sierra Nevada, almost within view of the Sierra summit on the Truckee side, in a region of historical romance handed down to us from the days when the Emigrant Trail was something more than a mere landmark, the South Yuba-Bear River Development of the Pacific Gas and Electric Company finds its main sources of water supply in a cluster of artificial lakes twenty-one in number and of an aggregate storage capacity of 115,893 acre feet. These reservoirs formed part of the old South Yuba Water Company's system and, as such, in conjunction with a series of flumes and canals, the most notable of which latter were the Bear river and Boardman canals, helped out the mining industry in that region and, at the same time, furnished water for irrigation purposes to the counties of Nevada and Placer.

Some of these lakes have historical value. Meadow lake, for instance, was once the

site of a flourishing mining community in the days of the rush for gold across the plains. Lake Fordyce, another relic of the early mining days, is the parent reservoir of the system; the first dam was built there as far back as 1873. At the western end of this cluster of reservoirs lies Lake Spaulding, below Emigrant Gap, where a dam was built in 1892 for logging purposes by the proprietors of the old Smart mill, of historic memory. Two other reservoirs, named respectively, Lake Arthur and Lake Theodore, are located lower down the valley, in the vicinity of Clipper Gap.

The properties of the South Yuba Company, with three small water-power plants located, respectively, near Alta, Auburn and Newcastle, were purchased by the Pacific Gas and Electric Company in 1905, and that same year the idea of damming the waters of the South Yuba river below Lake Spaulding and turning that comparatively modest body of water into an im-



Lake Fordyce, the parent reservoir of the South Yuba-Bear River reservoir, whose storage capacity is about to be materially increased



Bird's-eye view of Lake Spaulding, showing at left the 275-foot dam

mense storage reservoir presented itself to the brains of our company's engineers. The surveys were made immediately, but the disaster of 1906 and the period of financial uneasiness which followed necessitated a postponement of constructional activities, and it was not until the summer of 1912 that real work was started. During the winter of 1912-13 a tunnel was bored through some 4400 feet of rock that blocked the way across country from the South Yuba canyon at Spaulding into Bear valley, while lower down valley where the snows do not impede traffic, the Bear river canal from Colfax to Clipper Gap was enlarged from an original capacity of some 1500 second feet to one of 14,000 second feet in anticipation of the increased volume of water that would be sent swirling valleyward when the new Spaulding dam should fill. At the same time, construction work was started upon the Drum power-plant in Bear river gorge some nine miles below Spaulding, whence 110 miles of 110,000 volt steel-tower lines would convey the precious electric energy from the point of generation to the Company's main high-tension distributing station at Cordelia, near where the waters of Suisun bay discharge into the upper end of the Bay of San Francisco, there to be "stepped down" for redistribution to various receiving stations on both sides of San Francisco bay.

Rapid progress was made in this development. By November, 1913, the great dam at Spaulding had been constructed to a height of 225 feet above stream bed, and on Thanksgiving Day of that year the lake was filled and the water sent surging through tunnel and ditch, and the Drum power-house in Bear river gorge, with its installed capacity of 33,500 horsepower, put into operation.

This development was followed in due course by others, in order to take advantage of the 4500-foot drop in elevation between Spaulding and the City of Auburn, following the line of the Southern Pacific. Halsey plant, named after the late N. W. Halsey, a director of the Pacific Gas and Electric Company, was located in Christian valley, near Clipper Gap, and was opened for operation in December, 1916. Another, named the Wise plant after James H. Wise, former assistant general manager of the Company, was located in Auburn ravine just below the town of that name, and was opened for operation March, 1917. Each of these two additional developments was and is of 16,750 horsepower generating capacity. Since that time there have been constructed two smaller power units, one a 5000-horsepower plant in the "adit" of the mile-long tunnel referred to above, and the other at a point just below the Spaulding dam where a certain amount of water is diverted into the ditch system that feeds Nevada City. This latter is of 1350 horsepower capacity.

To make these additional developments possible, and to add materially to the kilowatt hour capacity of the South Yuba-Bear River system, it has been necessary to twice raise the height of Lake Spaulding dam. In 1916 the dam was raised from 225 to 260 feet above stream level and in November, 1919, by the addition of another fifteen feet the dam was raised to its ultimate height of 275 feet. Lake Spaulding is now the largest reservoir in the "Pacific Service" system and has a storage capacity of 74,488 acre feet, or upwards of twenty-four billion gallons, enough water to supply the City of San Francisco at her present rate of consumption, for about twenty-two months. The flooded area when the lake is full is 694 acres. The crest of the dam itself is 4875



Halsey power-house, of the South Yuba-Bear River development, is picturesquely located in Christian Valley, near Clipper Gap

feet above sea level, and the lake has a catchment area of 121 square miles.

The water from Spaulding is conveyed by tunnel from the South Yuba canyon into Bear valley, down which it winds its way by open canal to Drum forebay reservoir on a ridge above Bear river gorge. From this point it is shot down a 1375-foot steep to the Drum power-house and after doing its duty by turning the water-wheels it escapes into the Bear river again. Lower down valley, at a place about a mile above Colfax, the water of the Bear river is diverted into a canal which marks the upper end of an irrigation system that takes care of many thousands of acres of deciduous fruit lands in that fertile section of the Sacramento valley. Incidentally, this water serves to operate the Halsey and Wise power-houses. Below Wise our company's engineers during recent years increased the irrigating facilities in order to supply the region around Newcastle.

During 1922 the engineering department took survey of our South Yuba-Bear river system and recommended certain increases in output capacity for the benefit of "Pacific Service" consumers. As a result, a third generating unit was placed in Drum power-house, which now has an installed capacity of 50,250 horsepower, and in the construction program for 1923, further improvements are provided for. The work now to be undertaken includes the raising of the dam at Lake Fordyce, which lies

amid the granite peaks about seven miles by trail from Cisco, the nearest point on the overland route of the Southern Pacific. The first dam, as stated, was built there as far back as 1873, and the present dam dates from 1881, though it has been subjected to some reconstruction and reinforcement work since then. It is a rock-filled structure about 800 feet long, 140 feet thick at the foundation and 92 feet high, measuring from the base of the canyon, and the reservoir thus created is of 20,000 acre feet storage capacity. The "Pacific Service" engineers are about to more than double this storage capacity. By raising the dam 47 feet Lake Fordyce will be transformed into a 47,000 acre feet reservoir.

Meanwhile, it will be necessary to reinforce and improve the water transmission facilities between Lake Fordyce and Auburn, in order to take care of the "peak." Improvements will be made in the Drum and Bear river canals, enlargements made where necessary, the alignment rectified in places, certain detours of first construction eliminated, leakage corrected, etc. Drum power-house will be improved by the laying of a second penstock down the 1375-foot incline. Drum is to be used as the "peaking" plant of the system. Then, below Drum will be built a reservoir, or afterbay, in the Bear river gorge half a mile below the plant, in order to utilize and regulate the water from that plant's "peaking" operations. It is contemplated, also, to enlarge the forebay at the Halsey plant.

It is estimated that the improvements contemplated and about to be put into execution will increase the capacity of the South Yuba-Bear development by 25,000,000 kilowatt hours. Good news is conveyed to the farmers of the Auburn-Newcastle region by the announcement that the increase in the water storage up above will benefit points below Wise power-house for at least nine months of the year, the estimated amount of increase being 45 second feet, or 1800 miners' inches.



A section of Drum Canal

Gas Department Reports a Record Year

We Californians are quite elated over the rapid increase in population of our State and the extensive building operations and establishment of new industries and manufacturing plants. This is particularly true in the territory in which "Pacific Service" supplies gas.

Few persons excepting those associated with public utility companies either as employees or stockholders realize just what it means to meet the demands made for service by this rapid growth. Due to civic development, extensive paving programs have been carried on in practically all communities served by this Company. This has made necessary the overhauling and replacing of mains; in many instances it has required the laying of larger mains in order to provide for future growth and thus save the expense which might be incurred by having to tear up pavement in the near future.

During the last year 18,998 new gas con-

sumers were added to our gas distribution system. This required the installation of 183 miles of mains in addition to necessary services and meters. It was also necessary to make extensive additions to all the gas generating plants in order to provide adequate gas supply for the new consumers in addition to the increasing demand for gas for house-heating and industrial purposes. A total of \$2,590,380 was expended in making the necessary additions and improvements to our system. In order to form an idea of the magnitude of the work carried on last year by this Department, the work completed was of sufficient amount to provide a complete gas generating plant and distribution system to supply a city of approximately 100,000 inhabitants. In addition to the above expenditures \$7,049,767 was expended in labor, purchases of oil, supplies and maintenance work. To carry on this program required the services of ap-



The new ten-million cubic foot gas holder in San Francisco in process of construction

proximately 1700 employees and 216 automobiles.

In spite of the very keen competition offered by electric ranges and water heaters the gas business continues to thrive and an increase in sales of approximately $7\frac{1}{2}$ per cent over 1921 was noted. From present indications increase in sales for 1923 will exceed the increase for 1922, due to a very active gas sales campaign.

The gas industry in the United States being over 100 years old has lost much of its novelty and attractiveness, such as are enjoyed by the electrical industry, particularly in hydro-electric developments. Nevertheless, the gas men are just as earnestly and seriously facing the problems which confront them and developing new processes for gas manufacture, devising new methods of distribution and improving the efficiency of existing equipment and appliances and, at the same time, finding new outlets for their product. Thus, by increased economy and improved efficiencies the gas industry is able to meet the increased demands for gas used for heating and industrial purposes without an increase in price of the com-

modity to the consumers commensurate with the increase in cost of material and labor. The steady growth of gas as a necessity is shown by the continued increase in our business of approximately 7 per cent per year.

Improvements in East Bay Division

Due to the very rapid expansion of the East Bay territory the past year has been most active in the gas department. This division includes Oakland, Berkeley, Alameda, San Leandro, and Hayward, and according to the Chamber of Commerce report this section is showing an extremely rapid growth both in industrial development and home building. New gas consumers to the number of 6232 were added to the distribution system, and extensive improvements and additions were made to the gas generating plant at Gas Station "B," also to the transmission and distribution system. Gas is being extensively used for house heating in this division and adequate provisions had to be made to meet the high peak hour demands made by this heating service. In some sections additional feeders



Liquid purification process towers at Gas Station "B," Oakland—absorber towers on left, actifiers on right

of larger capacity were required, and in other localities where existing mains had become entirely inadequate to meet the increased demands for gas, entire areas, such as the Mandana Boulevard, Piedmont and Rockridge District were converted to what we call a Semi-High-Pressure System; that is, the pressure on the mains was increased from about one-fourth pound to 10 pounds per square inch, and individual regulators were installed on each consumer's service in order to give the required pressure of approximately six inches of water column. In this manner the capacity of the existing mains was made adequate to meet the increased demands and, also, improved service resulted in that the pressure is always uniform. Owing to pavement and street improvements the cost of replacing the smaller mains with larger mains was prohibitive, and this we claim as an achievement in gas distribution that we were able to improve service conditions, increase the supply and provide ample gas for future growth at a minimum capital investment.

In the Gas Station "B" generating plant located in Oakland, large installations were necessary, most important of which was the installation of a Koppers Liquid Purification Plant designed for a daily capacity of 24,000,000 cubic feet of gas. This is the first installation of the kind in the West and marks one of the greatest improvements in the gas industry. The removal of sulphur compounds from the gas has always been a very difficult and expensive operation, and with the increase in sulphur content of the residuum oils which we are using for gas manufacture the problem had become particularly acute. The liquid purification process is working successfully and will result in improved operating conditions, reduce the amount of corrosion in mains and meters due to sulphur and cyanide compounds and result in a cleaner and better gas to our consumers.

In order to supply adequate storage capacity for the East Bay division, a 6,000,000



Liquid purification installation at Oakland, showing blowers at left and solution rate flow meters at right

cubic foot gas holder was erected at Gas Station "B." Steel work on this holder was completed in four months and four days, which established a record for construction of a holder of this size. Two large steam-driven compressors were installed, one of 250,000 and the other 500,000 cubic feet per hour capacity. A new boiler installation of 1200 horsepower was installed to furnish power for the compressors. This boiler installation represents an improvement in boiler design in that we are enabled to burn wet lampblack with a high content of tar and naphthalene with the production of a minimum amount of smoke, and obtain a greater yield of steam than from the old style boiler installations. By the installation of a new car system for hauling fuel to the boilers, improved conditions in the boiler room has resulted in better housekeeping throughout the entire plant. The installation of steam-driven auxiliaries has made possible the closing down of lampblack briquetting operations.

Ten Million Foot Holder for San Francisco

The Potrero Gas Plant at San Francisco had reserve generating capacity sufficient to meet the demands of the 5051 new consumers added to the distribution system during the year, but greater volumes of gas were required in the more congested districts to meet the increasing demands due to heating and industrial uses. A thirty-inch

C. I. trunk line from the Potrero plant to Van Ness avenue was converted to a Semi-High Pressure line and the pressure increased from less than one pound to three pounds per square inch, governors being installed to feed the necessary laterals. A centrifugal compressor of 1,500,000 cubic feet per hour capacity, driven by a variable speed motor, was provided to supply this trunk line. This installation represents a new departure in gas boosting in that we are able to obtain a 50 per cent variation in speed of an AC motor and by proper regulation of valves and control of motor speed obtain a wide variation in pressure and volume to meet the fluctuating hourly demands.

The Koppers Liquid Purification Plant, with a daily capacity of 30,000,000 cubic feet, is under construction and will be put into operation early in June. This will release from service some old iron purifier boxes which have been in continuous operation since 1875. A battery of six new scrubbers is nearing completion and will furnish needed scrubbing capacity for the coming winter. A 500,000 cubic foot relief holder which had been in operation since 1872 was rebuilt. Plans are completed for new salt

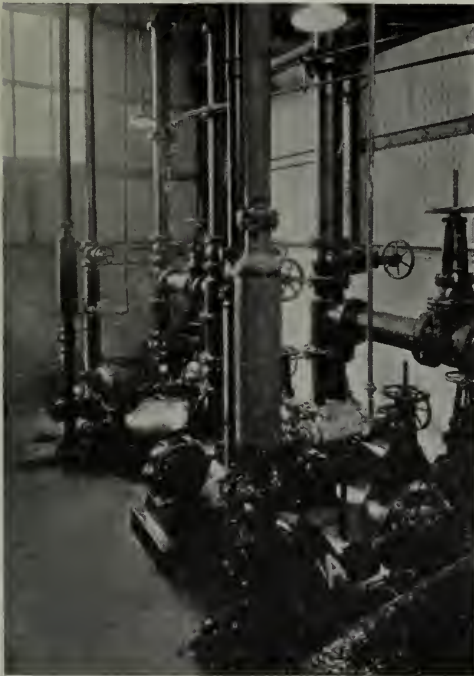
water intake system and two new 18 feet by 9 inches gas generators of 5,000,000 daily capacity each with the necessary auxiliaries and boilers. A new 10,000,000 cubic foot holder has recently been completed on Army street to be used for additional storage capacity from the Potrero works and the laying of necessary mains to connect the new holder with the Potrero plant will be started as soon as the pipe arrives from the East. This 10,000,000 cubic foot holder was completed in five months and six days, which establishes another record to the advantage of "Pacific Service."

Active Operations in the Interior

In order to meet the increased demands for gas in Fresno, due to the addition of 2322 new consumers, two new compressors were installed, one motor driven and the other driven by a gas engine. Both machines operated satisfactorily during the past winter and excellent service was rendered. A Koppers Liquid Purification Process Plant is under construction and will be put into operation in May. Also, an additional exhaustor was installed and a new building erected for housing the liquid purification apparatus and exhausters. Thirty miles of new mains were laid to supply new consumers and extend service to new real estate tracts.

At the Sacramento plant the generating capacity was increased and the operating efficiency improved by rebuilding the fourteen foot gas generator. An additional boiler of improved design, rated at 500 horsepower, was installed. A new steam-driven booster, exhaustor and compressor were put into operation to meet the increased demand for gas in this division. There was an increase of 1640 new consumers in this division and a general increase noted in the use of gas for heating and industrial purposes. A Koppers Liquid Purification plant is under construction and will be in operation the latter part of May; also, plans have been completed and contracts let for a new gas generating set and auxiliaries with a daily capacity of 3,000,000 cubic feet. Due to very extensive home building in Sacramento many extensions to our distribution system were made to serve new subdivisions, and building is continuing very rapidly.

An improved 500 horsepower boiler installation was put into operation at the San



Pump installation for liquid purification process,
Oakland Gas Works

Jose plant, and, also, an additional steam-driven compressor installed to meet the demand of 1602 new consumers supplied from this plant. A Koppers Liquid Purification plant is under construction and will be placed in operation in the near future. Plans have been completed and contract let for the construction of a new 15 foot gas generator of 3,000,000 cubic feet daily capacity. Additional property was purchased to provide a site for future storage holder of 2,000,000 cubic feet capacity to be erected when the high pressure line is extended north from San Jose to connect with the high pressure trunk from San Francisco now ending at Mountain View. Extensive additions were made to the distribution system on account of the great amount of home building and extension of high pressure systems into new suburban territory.

At the Santa Rosa Gas Works a new single shell generator of improved design was installed to meet the increase in demand for gas in territory served by Santa Rosa. Existing generating equipment became entirely inadequate and, due to the very rapid growth of the surrounding country, the en-

tire plant has now become inadequate to meet the demands of the future. After considerable study it was finally decided to locate a new plant at San Rafael and abandon the Santa Rosa plant as a generating station. This made necessary the laying of an eight-inch high pressure line from San Rafael to Petaluma, a distance of approximately twenty-three miles, to connect with the existing four-inch high pressure line extending from Santa Rosa to Petaluma. The construction of this new line is now well under way and completion is expected in July or August of this year.

The decision to erect a central plant at San Rafael makes necessary the building of a large plant at this point. Construction work is now well under way on a 500,000 cubic foot holder, plans and contracts completed for the erection of a twelve-foot gas generating set of 2,000,000 cubic feet daily capacity, necessary boilers and auxiliaries have been ordered and completion of the plant is expected before the coming winter. Gas service was extended to the towns of Mill Valley, Corte Madera and Sausalito during the past year. In order to meet the



Fresno gas plant, showing new exhauster and blower building and liquid purification plant

increased demand occasioned by these new consumers a nine-foot single shell set was installed and additional compressor and other auxiliaries. The completion of this central plant will serve a territory extending forty miles north to Santa Rosa and fifteen miles south to Sausalito. This will mark an advance in methods of manufacture and distribution by elimination of the small inefficient generating plants and concentrating the manufacture in one highly efficient central plant.

The city of Vallejo has shown very little increase, due to the shutting down of operations at the Mare Island Navy Yard, but it was necessary to erect a 500,000 cubic foot holder on account of the failure of the existing holder. The future of the Vallejo plant appears to be bright, as operations are being resumed at Mare Island, and our future plans call for the extension of a high pressure line from Vallejo to Napa, a distance of seventeen miles, which will permit the closing down of the small plant at Napa and result in better operating efficiencies and improved service to the consumers at Napa.

At Marysville, due to a great deal of building the demand for gas has reached the capacity of the existing plant. Property has been purchased and plans completed for the erection of additional generators and holder, and it is expected that the new plant will be in operation by the coming winter.

At Chico, Oroville and Grass Valley a nominal increase in consumers was made and no particular improvements were necessary in the plants and distribution systems.

The Willows Gas Generating plant was entirely rebuilt and now has installed new boilers, new generator and auxiliaries. The plant is now in first-class operating condition.

The Redding gas plant was entirely overhauled and placed in first-class operating condition and a large increase in sales and consumers was noted for the past year.

A few additions were made to the Red Bluff Gas Works and a large section of the distribution system rebuilt.

No particular changes were made at the Colusa plant and very few consumers were added during the year.

In the Redwood District the high pressure transmission line was extended south to Mountain View, service given to Mayfield and distribution lines and services are now being installed in Mountain View.

In reviewing the activities of the Gas Department for the year 1922 it is safe to say that the past year has been the most active in the history of the Company in the addition of new consumers and construction operations.



Vallejo gas plant, showing new 500,000 cubic foot holder

The People's Partnership in "Pacific Gas Preferred"

In 1914—that year which proved so fateful in the world's history and witnessed the beginning of the Great War—there were grouped around a table in the directors' room of the Pacific Gas and Electric Company a number of men. They had met for a discussion of the Company's financial situation. This Company, serving one of the most rapidly growing sections of the United States, had undertaken and partially financed a very large construction program in the Sierra Nevada Mountains, but additional funds were needed to complete the work. Hydro-electric development in those days was not as well established nor as easily financed as now and, despite the present custom of referring to 1914 as the last "normal" year before the war, money was none too plentiful, and business generally was in the doldrums. The problem confronting the Company was not without difficulty, notwithstanding the splendid prospects for future expansion offered by its field of operations in California. Its rapid growth had necessitated repeated financing, and its funded debt and outstanding notes at the close of 1913 amounted to two-thirds of its total capitalization. The sale of more bonds was not considered desirable. Stock financing was the obvious solution, but how?

"We can sell stock right here among our own people," said Mr. A. F. Hockenbeamer, Vice-President and Treasurer of the Company, "they know the Company, they realize that we have to expand our facilities if Northern California is to develop, they have faith in our future, and they have the money to back their judgment."

"Well," said the President of the Company finally, after a good deal of deliberation and discussion, "go ahead and try it. You might sell enough stock to pay for the circulars," he added, with his characteristic grim humor.

And so it was that the "customer-ownership" plan was conceived and carried into execution almost nine years ago. There was no precedent for guidance in those days,

but fortunately the man who had suggested the plan and upon whom devolved the responsibility for its successful execution had graduated into "Pacific Service" from a nationally-known bond house and was well versed in the art of selling securities. Before many days Mr. Hockenbeamer had perfected his plans and was ready for action. The first salvo was fired in the shape of a circular addressed to the Company's existing stockholders, 3000 strong, and then the heavy artillery opened up with a veritable barrage of a quarter of a million circulars directed to the Company's consumers. Newspaper advertising supported and supplemented the circulars and then the whole Company organization took off its coat, rolled up its sleeves and went into action. No financial reward in the shape of commissions was offered to employees to stimulate their efforts, but the loyalty and enthusiasm with which every member of "Pacific Service" backed the executives could only spell success. It did! The results astonished even the most optimistic members of the organization, as well as creating surprise among interested observers all over the country. Cyrus Peirce, head of a well-known investment banking house, in testifying before the State Railroad Commission, said in answer to a question, "We do not sell preferred stocks. In fact, nobody that I know is selling preferred stock just now. The only recent transaction of the kind I know anything about is the amazing operation of the Pacific Gas and Electric Company, which has excited the wonder of the whole financial world."

Within a few weeks of the mailing of its first announcements the Company had effected the direct sale of several million dollars par value of its First Preferred Stock, and the success of the plan was assured. To quote the words of a financial news writer of that time "A new trail was blazed in the jungle of finance." The trail has since become a well traveled highway. "We have started something," said Mr. F. B. Anderson, President of the Bank of California and also a director of the Com-

pany, "which will spread all over the United States in the next few years." His prophecy has been fulfilled. The idea has been adopted by utilities, great and small, throughout the country, and in the short space of less than nine years not far from half a billion dollars' worth of securities has been sold by this means to 500,000 investors. Largely as a result of the "customer-ownership" movement, it is estimated that the ownership of the securities of electric power companies in the United States is now distributed among one and three-quarters million persons.

Right at its inception the new method of financing was subjected to the acid test. Less than two months after the Company's preliminary announcements the clouds of war loomed suddenly and burst like a cyclone over a world at peace. The advent of war and the closing of the Stock Exchanges throughout the United States practically brought the ordinary financial machinery of the country to a standstill. The customary channels of investment banking were closed

tighter than drums. And in the midst of all the confusion and turmoil the Pacific Gas and Electric Company's new stock-selling plan went merrily on. The local butcher, the baker, and candlestick maker came in with their subscriptions by the thousand. It has been often said that the Liberty Loan campaigns created a large number of investors who had never before owned any security. So, in a smaller way, did the "customer-ownership" plan three years before Liberty Loans were thought of. Investment funds were found in very unsuspected quarters, among people that the most optimistic bond salesman would pass up as "prospects." A large number of subscriptions were paid in cash and currency by those who had never possessed or expected to possess a bank account. Here is a partial list showing the occupations of 1583 stockholders in one of the Pacific Gas and Electric Company's divisions—not a selected list by any means, but merely taken as representative of the thousands of partners in "Pacific Service":

Accountants	19	Druggists	5	Mechanics	26	Retired	164
Apt. Owners	4	Editors	2	Merchants	59	Salesladies	4
Artists	3	Electricians	9	Medium	1	Salesmen	29
Bankers	6	Elevatorman	1	Miners	6	Scientist	1
Barber	1	Engineers	36	Minors	7	Sexton	1
Blacksmith	1	Executives	24	Misc. Agents	9	Stenographers	26
Brokers	4	Firemen	3	Motormen, Con- ductors	10	Students	9
Businessmen	8	Florist	1	Musicians	2	Surveyors	4
Butchers	5	Gardeners	2	Music Teachers	4	Tax Collector	1
Capitalists	6	Geologists	2	Newsboys	1	Teachers	44
Capt. in Army	1	Grocers	16	Newspaperman	1	Teamsters	5
Carpenters	20	Hotelmen	3	Nurses	9	Telephone Operator	1
Cashiers	4	Housewives	410	Oil Operators	9	Undertakers	2
Chauffeurs	2	Ins. Agents	12	Post Mistress	1	University Pro- fessors	3
Cigar Makers	3	Janitors	5	Pool Room Pro- prietor	1	Waiters, busmen	38
Clerks	52	Jewelers	7	Printers	3		
Clergymen	8	Laborers	18	Ranchers	45	Total	1307
Cobblers	2	Lawyers	9	Real Estate Agents	4	Company Employees	276
Contractors	7	Laundry Owners	3	Restaurant Owners	3	Total	1583
Cooks	3	Letter Carrier	1				
Dentists	3	Librarians	2				
Doctors	13	Lumbermen	4				
Draughtsman	1	Manufacturers	7				
Dressmakers	5	Mariners	11				

Of the 1307 stockholders listed above, other than Company employees, 507, or 38.8 per cent are women, and this proportion is undoubtedly approximately the same throughout the list. In view of the comparatively limited number of wives who boast housekeeping allowances, the total of 410 housewives would appear to indicate

that if the fair sex is not "fiercer than the male," it is at least thrifter.

The extent to which individuals of moderate means who, after all, constitute the great bulk of our population, have identified themselves with the ownership of this utility may be appreciated from the statement that at the close of 1922, 11,017

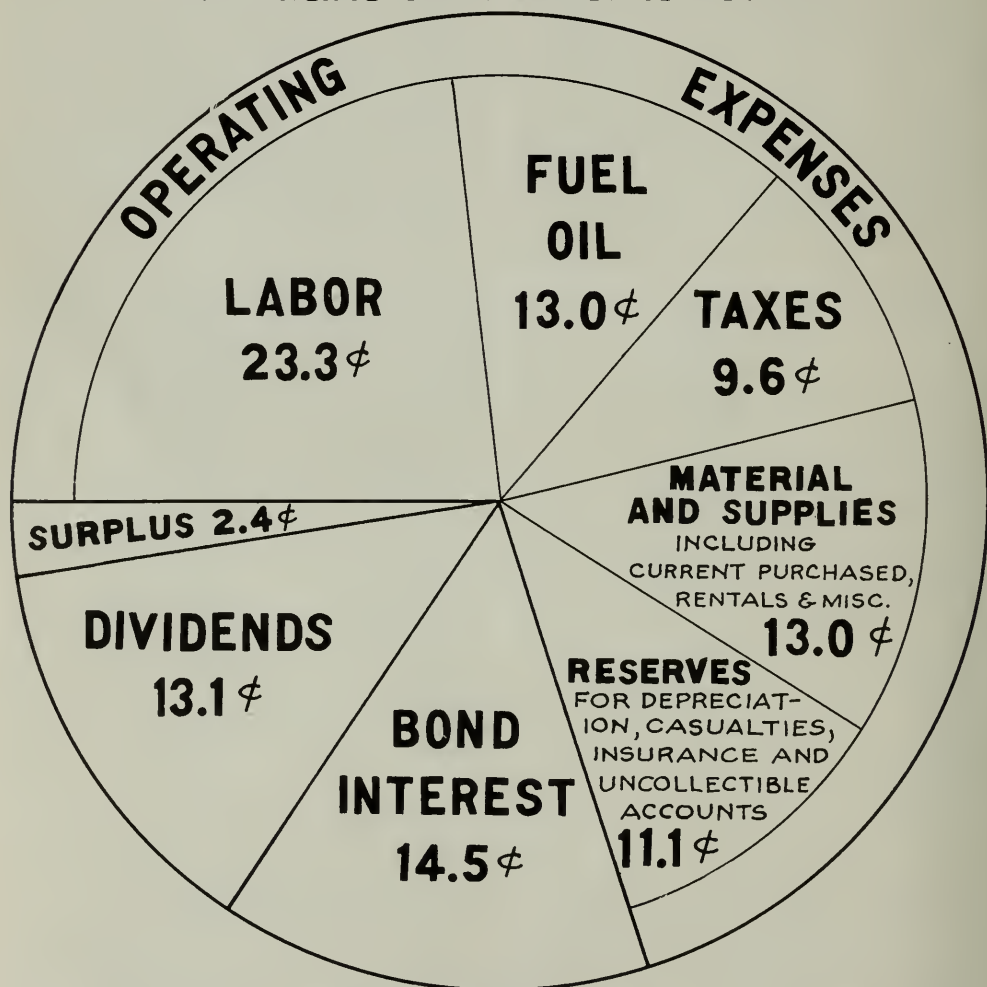
of the Company's stockholders, or almost 43 per cent of the total, owned less than 10 shares each, 22,200, or 86 per cent owned less than 50 shares and 24,180 persons, or upwards of 93 per cent, owned less than 100 shares each. Over 80 per cent of all stockholders reside in the Company's field of operations.

The ever increasing popularity of this Company's Preferred Stock among local investors is evidenced by the fact that both with reference to the number and volume of sales, the year 1922 surpassed any previous year. People like this plan of direct

purchase of stock. Of the 9314 sales made in 1922, about one-third were "repeat orders" from previous purchasers, and this proportion tends to increase constantly.

The Pacific Gas and Electric Company has reason to be proud of its roster of stockholders, and may also feel some satisfaction in having inaugurated among the utilities of the country a plan which affords a sane and practical solution of the public ownership question, permitting of real ownership of the public utilities by the people, who at the same time retain the advantages of private initiative and enterprise.

THE PACIFIC GAS & ELECTRIC DOLLAR



The radial lines indicate what became of the consumer's dollar in 1922. It is noted that labor received 23.3c, while 13c went for fuel oil and 13c for material and supplies, the larger part of which, also, is for labor, paid indirectly by the Company. It will be noted that the operating expenses, including taxes—both federal, state and county—and reserves, accounted for 70c of the dollar.

An Active Sales Organization That Prosecuted An Effective Campaign

During the year 1922 the Company's commercial and new business activities were consolidated into a Sales Department under the direction of a vice-president. This significant development of administrative policy has already demonstrated its value and its possibilities of usefulness in the expansion of electric and gas sales. The new department immediately began an active campaign of education of consumers and prospective consumers of both gas and electricity, this work being carried on through a personal advisory service staff made up of sales engineers, trained and experienced in their particular fields.

The Electric Sales Department brought attention to the utilization of electricity with special emphasis on its use in the home and on the farm looking to increased use as well as to expansion into new fields. Special efforts were made to stimulate interest in appliances and in making the proper wiring provision for their use. A program of co-operation between the power companies and appliance manufacturers, jobbers and dealers and wiring contractors was initiated some four years ago and was carried on energetically during 1922 under the direction of a joint committee representing all of the interests, the chairman being Pacific Gas and Electric Company's Vice President in Charge of Sales. This Company not only contributed its proportion to the funds for this campaign but through its officers and employees especially the electric sales engineers, entered actively into the movement itself and was the most important single factor in insuring its success. The effect of these efforts has not been completely registered in the sale of electricity, but an increase in sales per consumer in the residence and commercial lighting accounts from 491 to 506 kilowatt hours, and a total increase of 14,481,000 kilowatt hours in lighting sales was realized during the year.

The exhibition of electric ranges, heaters and appliances maintained in the Company's seventy-six offices were enlarged and arrangements made for practical demonstrations by experienced attendants for the

benefit of the casual visitor. In addition, sixty-nine special demonstrations with carefully planned programs were carried out, at which samples of food were cooked on electric ranges and served to the guests, moving pictures of electrical service exhibited, the problems of electric utility in the home discussed, and inquiries as to specific conditions answered. More than 24,000 personal invitations were issued to consumers to attend these general demonstrations and an attendance of nearly 8000 noted.

The Company co-operates with established dealers throughout its territory, and sells appliances directly only where there is no appliance store. For this reason the influence of these demonstrations upon increased appliance sales could not be accurately gauged, but the connected load in ranges and water heaters alone increased 9384 horsepower or 57.1 per cent during the year.

A similar campaign was begun in the agricultural field, with practical demonstrations of farm motors, irrigation and reclamation pumping, poultry incubating, etc., and an increase of approximately 5 per cent in connected load, number of consumers and gross sales was effected during the year. Service was supplied to 12,500 agricultural consumers cultivating a total area in excess of 450,000 acres, who consumed a total of 108,181,961 kilowatt hours of electrical energy, or 240 kilowatt hours per acre, which is equal to the work of one man constantly employed on each acre under cultivation.

The practical domestic saturation of the territory served has been obtained, a careful house to house canvass in the City of San Francisco revealing less than 1000 unwired houses out of a total of approximately 96,000; in the outside territory there is a smaller ratio of unwired houses, and there are, therefore, less than 2000 buildings in the entire territory in which electric service is not in use.

The Company's policy, under which these lines will be built wherever the expected

annual revenues equals one-fifth of the cost of the extension, is the most liberal rural extension policy in effect in America, and will insure the availability of electric power wherever required for the growth, the convenience and the prosperity of the territory served.

Ninety-seven per cent of the industrial power in the territories served by this Company is electrified. The capacity of this equipment being 229,874 horsepower, or a gain of 8.21 per cent for the year 1922. The unelectrified portion of the industrial power in the Pacific Gas and Electric Company's territory is almost entirely confined to the lumber industry which produces its fuel as a by-product; however, a marked progress in the electrification of this industry is being made.

The electric territory served by the Company in 1922 included some 89 incorporated cities, 142 villages and towns and a suburban area of 35,000 square miles with a population of approximately 1,500,000 people.

During 1922 the Company supplied 296,054 residential and commercial lighting consumers, with a total connected load of 402,064 horsepower, an increase of 25,110 consumers and 34,918 horsepower of connected load.

The Gas Sales Department's efforts involved the domestic and industrial uses of gas. This work divided itself into two sections, that of adding new consumers and that of selling the idea of greater utilization of gas to present consumers thereby building a profitable load on existing lines.

Several years ago the necessity of active co-operation was realized and an organization known as the Gas Appliance Society was formed. In 1922 there were fourteen active chapters of this society with an individual membership varying from 25 to 150. In all of the activities Pacific Gas and Electric men take an important part. The aims and purposes of this society are to stimulate the sales of more and better gas appliances and to coordinate the activities of all branches of the gas industry, this including manufacturers, jobbers, gas companies, plumbers and retail dealers.

The outstanding accomplishment of this society is the annual Gas Campaign Week, state wide in nature, of which two were held in the year 1922. These campaigns in-

cluded the full membership of the society and this took in 1016 hardware dealers, 1168 furniture dealers, 1550 plumbers, 280 gas appliance dealers and 27 gas companies. During these campaigns the full co-operation of some 502 newspapers in California was obtained. The campaign week was handled by the various societies and financed by the gas companies, jobbers and manufacturers the retail dealers doing their part by local advertising and store and window displays and demonstrations. The advertising in the 1922 campaign ran between 50,000 and 60,000 column inches with no cost to the utilities.

The continual business transactions and meetings between the various groups of gas industries as represented by the gas societies has dissipated the old idea of competition and ill feeling between the various groups and the utilities and has brought about a feeling of friendliness and a spirit of co-operation which is unique in public utility work and makes California stand out as a prominent example of co-operative work in this country.

The effect of these sales efforts, together with that of this Company's gas sales engineers, has been evidenced by the increased use of gas per consumer. This increase for the last five years being 4000 cubic feet per consumer and of 900 cubic feet for the year 1922.

Each one of the Company's twenty-eight gas offices has a complete display of domestic cooking, water heating and air heating appliances. In addition to this five big gas cooking demonstrations were held at various points with an approximate attendance of 1650 housewives. Also large displays of gas appliances were made at some seven fairs throughout our territory. Another great show place is the Gas Laboratory, maintained in San Francisco, the largest single display of all types of gas appliances in the United States. The devices on display, connected and ready for a practical demonstration, vary from gas ranges and fireplace heaters to large warm-air heating systems and bake ovens. The total floor space occupied amounts to 9600 square feet.

The Company co-operated with the local gas appliance merchandisers and does not sell directly only at points where there are no appliance stores. For this reason it is difficult to check exactly as to the quantity

of this merchandise sold but it has been conservatively estimated that in the Pacific Gas and Electric Company's territory there were 15,000 cabinet gas ranges, 12,000 tank water heaters, 7000 automatic water heaters and 2000 warm-air furnaces sold in 1922. (Among these installations.)

The industrial gas business has shown a like growth for the year. Among these installations are the University State Farm burning 350,000 cubic feet a month; Napa State Hospital, 150,000 cubic feet a month; Western Die Casting Company 100,000 cubic feet a month and the Homestead Bakery, San Francisco, which consumes the amazing amount of 1,000,000 cubic feet a month. This bakery installation is an ideal one, the oven itself being an automatic traveling one and finished in white tile. This single oven bakes daily 60,000 loaves of bread, averaging one pound a piece. The industrial gas business for the year 1922 increased 18 per cent over the previous year. The pending industrial business amounts to a consumption of something like 580,000,000 cubic feet.

During the year 1922 extensions of high pressure gas mains to serve five communities were made. These cities were Campbell, Corte Madera, Mayfield, Mill Valley and Sausalito with a total population of 7678 people.

In 1922 gas was supplied to 314,830 consumers, an increase of 17,560 during the year. The total sale of gas reached the amazing figure of 12,353,849,000 cubic feet, or an increase of approximately 7 per cent. The energy value of this amount of gas can be readily pictured by stating that it is more than equal to the combined man power of the country of China, the largest populated country in the world.

Many and varied commercial details of sales activities were handled by the Commercial Department, among them electric, gas, water and steam extension papers, preparation of contract and special agreement forms in conjunction with the Law Department, renewal of contracts, and the purchase of electric lines from consumers, sale of appliances to employees, appliance

sales and prices, both gas and electric, adjustment of consumers' accounts involving commercial details, interpretation of rates, sales and commercial rules and regulations, advisory service to applicants and consumers, regarding rules, regulations and rates, sales advertising—both gas and electric.

At the beginning of the year 1922 the sales advertising of our Company took on a very new aspect, in that, where previously sales copy originated from many sources, it now follows a definite schedule or plan.

Sales advertising was designed mostly to develop and encourage greater uses of current-consuming or gas-consuming devices that will operate at off peak load times and thus fill up the valleys in our load curve, making for better plant operation and better service. It is readily apparent from this that the advertising depends very materially upon seasonal changes.

The thought and purpose behind each sales advertisement was to convince the prospect or consumer that the appliance advertised is one that he should have, that it will suit his needs, and give him economical and reliable service. From a salesman's viewpoint, an advertisement bears this purpose, that it will acquaint the reader with the appliance and drive from his mind his most serious oppositions to its purchase and use, this breaking down sales resistance.

Our sales advertising always gives due consideration to the fact that legitimate merchants and dealers in gas and electric appliances are located in the various communities in which we serve, and are entitled to our full support and co-operation, bearing in mind that our chief function is to manufacture and deliver our main commodities, gas and electricity, this relation resulting in a partnership between the dealers in these appliances, and ourselves who manufacture the commodities to be used. The dealer is given advance information as to what the advertisement is to cover, and where possible, is furnished with proofs of the advertisement. Also the idea of co-operation is carried right in the copy "See Your Dealer."

"Pacific Service" Publicity

During 1922 Pacific Gas and Electric Company endeavored in the fullest measure to enlighten public opinion respecting the company's business; to interest the public in the historical development of the electrical utility service, to quicken public interest to a realization of the service performed and to emphasize the importance and impress upon the minds of the citizenry the vital part played by the Company in the development of the State and its industries.

That the reading public might be fully informed an extensive advertising campaign was planned and carried out. Advertisements were of two classes—institutional and sales. The character and originality of these advertisements were favorably commented upon wherever they appeared. In all 186 different advertisements were prepared and published: 52 daily, 123 weekly, 6 monthly, 7 farm, 8 foreign language, or a total of 196 publications being used to convey the Company's message to its consumers and the public. 93,210 column inches of space were used in the above publications which had a combined circulation of 1,500,000, or the equivalent of one copy for each person in the territory served. Supplementing this display advertising, 20 news bulletins containing 53 stories pertaining to our operations were prepared and issued to the press to keep the public fully abreast of important developments. The Company's house-organ, *PACIFIC SERVICE*, edited and published by its own force and having a circulation of 28,000 copies, was used to inform its array of stockholders and employees, as well as bankers and brokers interested in its securities, of the works in the course of construction and those contemplated, of the Company's finances, and of business developments in the territory served.

As a further means of stimulating public interest in the Company, its power developments and other activities, fifty-seven public meetings were held in the larger cities and towns of the Company's territory. An illustrated lecture was given describing the development of the Company from infancy to the present time showing pictures of the hydro-electric plants and dams built from time to time including the

recently completed Pit River power-plant. An enormous relief map of California depicting the locations of the various towns, power-houses and transmission lines, indicated by miniature electric globes of various colors, were used by the lecturer to illustrate the construction progress of the Company throughout its whole development and to show the inter-connected power systems. The meetings and programs were planned and executed entirely by the Company's employees. The final report shows that approximately 30,000 attended these public meetings. It is, of course, impossible to estimate the number of people who were indirectly reached. Suffice it to say that the Company's utility business in general was inestimably benefited.

During the latter part of 1921 a plan was adopted for arousing the interest of the Company's stockholders in its plans for expansion, for the development of its territory and the perfection of its service, and other matters of general policy. Beginning October 3, 1921, twenty-four stockholders' meetings were held in various cities and towns with a total attendance of 3,695. At these meetings the Company's executive officers addressed the stockholders upon the Company's operations, its problems and its program of expansion to supply power for the future growth of the State. These meetings were of great value both to the Company and its stockholders, and the beneficial effects thereof were indicated throughout 1922.

It may with confidence be stated that the active publicity campaign carried on by Pacific Gas and Electric Company during the year 1922 afforded to many thousands of people a clearer understanding of the public utility business, and a more general knowledge of the origin and development of hydro-electric service, of the uses of electricity, and of electrical science; and, that as a result thereof, the great majority of the people living in the territory supplied by "Pacific Service" realize the importance and appreciate the great part the electric utility has played in the past, and will play in the future in the agricultural, industrial and economic development of the State of California.

"Pacific Service" Building Activities

In addition to constructional activities of a varied character connected, for the most part, with improvements and extensions of electric, gas and water service, our Company during the year 1922 entered upon two important pieces of construction work for the housing of "Pacific Service" staffs of employees.

On the outside cover of this present issue is displayed a scene on lower Market street, in San Francisco, in which the tall stately structure in the foreground is the "Pacific Service" general office building that is to be, its location at the northeast corner of Beale and Market streets.

It was just a year ago that the real estate columns of the daily press throughout our section of California were alive with the news that our Company had purchased the western half of the block upon which the new sixteen-story building of the Matson Navigation Company is now under construction. The purchase of this property was accounted for by the fact that for years our Company had been cramped for space to accommodate its head office departments. Although but seven years have passed since the completion of the present headquarters building at 447 Sutter street, San Francisco, our organization has grown so rapidly that various departments have been forced to seek quarters in no less than five widely separated localities in San Francisco. This condition of affairs could not be expected to continue indefinitely. The management realized that to house all of these detached offices under one roof in adequate quarters must tremendously increase the effectiveness of the organization as a working unit. For other obvious reasons a general office building for so great an institution as ours was an absolute necessity. So now, for the first time in its history, "Pacific Service" is to be established in an adequate central home.

It will be an attractive as well as imposing edifice. Its notable features were described in a recent issue of PACIFIC SERVICE MAGAZINE.

Meanwhile, a new home for East Bay Division of "Pacific Service" in Oakland is now nearing completion. This, while less pretentious than the general office building in the western metropolis across the bay,

is sufficiently imposing to attract attention. It is located at Seventeenth and Clay streets, four blocks north of the present office. It has a frontage of fifty feet on Clay street and 100 feet on Seventeenth street, and is eight stories in height, with basement. The exterior of the building is of granite base with glazed terra cotta, cream color on the first story, while the other stories are of flame-colored brick with cream-colored terra cotta trim.

One-half of the basement contains display room for the exhibition of gas and electric appliances for demonstration and educational purposes. The basement itself contains a stationery room. On the main floor is located the order department, the pay-bill department, the cash receivers, the new business department and the executive office. The main counter is located in the center of the room. There are two main entrances, one from Clay street and one from Seventeenth street. The interior woodwork on the main floor is of mahogany, the floor is of Tennessee marble and the walls imitation stone. The other floors are plastered and tinted with pine woodwork to harmonize with the oak furniture. These will be assigned to the following departmental activities:

The second floor is given over to the bookkeeping department. On the third floor the cashier's office is located, also the collection department and telephone exchange. On the fourth floor the accounting department is housed. The fifth floor has been assigned, in part, to the new business department. The sixth floor contains the electric department. On the seventh floor are located the system load dispatcher's quarters and gas department. On the eighth floor are located an assembly hall, library, cafeteria, and kitchen. Last, on the roof and reached by a stairway from the assembly hall are located two large rest rooms, one for female employees and the other for male employees.

In many other features, too numerous to mention here, our "Pacific Service" building in Oakland ranks among the best up-to-date structures that grace the modern Athens across the bay from San Francisco.

"Pacific Service" As An Organization

The Pacific Gas and Electric Company was incorporated in October, 1905, through a merger of the California Gas and Electric Corporation with the San Francisco Gas and Electric Company. In 1919 it purchased the properties of the Northern California Power Company and in 1920 leased the properties of the Sierra and San Francisco Power Company. Its operations extend over thirty-six counties of North-Central California, containing within its territorial boundaries a population approaching 1,800,000, or over one-half of the population of the State. "Pacific Service" is by far the largest utility of its kind in the West and is second largest in the entire United States.

In addition to its boards of directors and executive officers the Company's administrative organization includes a group of six management officers, each invested with the title and powers of vice-president, among whom, under the supervision of the general manager, various departmental responsibilities are distributed, as follows:

The Vice-President in Charge of Electrical Construction and Operation directs the construction and reconstruction, maintenance and operation of all the Company's hydro-electric and steam-electric generating plants, transmission and distribution lines and substations connected therewith, the street railway system at Sacramento and all water systems owned and operated by the Company.

The Vice-President in Charge of Engineering directs all investigations into the Company's power development projects and, also, the advance studies and designs for all construction work to be done, equipment to be installed and apparatus to be used in connection therewith.

The Vice-President and Executive Engineer directs studies of economic factors affecting the Company's development, collects all statistical data relative to the physical properties of the Company, correlates the physical and financial operations and prepares valuation and rate schedules.

The Vice-President in Charge of Gas Construction and Operation directs the construction, re-construction, maintenance and

operation of all the Company's gas generating plants and distribution systems.

The Vice-President in Charge of Sales promotes and directs all sales of gas and electric energy and appliances.

The Vice-President in Charge of Public Relations and Service has charge of all publicity and personnel work, is in direct control of all matters affecting the relations of the Company with the public it serves, and has supervision of the twelve territorial divisions of the Company, all division managers reporting to him.

These management officers, who between them direct all activities concerned with the operating and service sides of the Company's organization, are of quite recent creation. They are part of a plan of general reorganization which was set in motion by the Company's administration in the fall of 1920 and completed in the beginning of last year. In conjunction with their various activities are certain working committees, namely, the president's advisory committee, the engineering committee, the gas engineering committee, the research committee, the employees welfare committee, the central safety committee and the appropriations committee.

The financial affairs of the Company are in charge of the Second Vice-President and Treasurer, who, in addition, has charge of all accounting, purchasing and warehousing.

Certain forms of both specialized and general service are required by the executive and management officers and by the territorial division managers, such as are rendered by the departments of: General Counsel, Attorneys, Rate Attorney, Claims, Property, Land and Tax, Personnel, Accounting, Purchasing and Supply. The officers in charge of these departments report directly to the executive officers, but are available to all other officers requiring them by direct application.

The operating and service departments represent two dimensions of the organization: the one specializes on a particular kind of operation and the other on a particular kind of service. The third dimension of this organization is represented by the geographic division into which the territory



Management officers of the Pacific Gas and Electric Company. At top center is Mr. P. M. Downing, Vice-President in Charge of Electrical Construction and Operation; immediately below is seen Mr. F. A. Leach, Jr., Vice-President in Charge of Public Relations and Service. To the left is Mr. A. H. Markwart, Vice-President in Charge of Engineering; to the right Mr. W. S. Yard, Vice-President in Charge of Gas Construction and Operation; at lower left Mr. W. G. Vincent, Jr., Vice-President and Executive Engineer; at lower right Mr. R. E. Fisher, Vice-President in Charge of Sales.

served is divided. Each division is a complete unit by itself under one management, responsible to both operating and service departments for methods of technical efficiency and general control, but acting on individual initiative in application, immediate supervision and the detail of effective accomplishment of concrete tasks. This arrangement provides the man farthest in the field with the same guidance and service as the man nearest the main office.

The system of committees previously referred to provides for the co-ordination of the work of the various departments and divisions, a review and analysis of all recommendations arising from the ordinary expansion of service, and for the development of all facts and points of view bearing upon any problem.

The results obtained from the reorganization plan have been extremely gratifying. Every subject requiring executive action, every individual appropriation, every important extension, all questions of general policy and all claims or complaints that cannot be adjusted by local representatives within the limits of established policy are, before reaching the executive officers, subjected to analysis by experts and review by competent managing officers, and their recommendations are available as aids to executive action. By this system executive officers have been relieved of a great burden of routine detail and a marked increase of efficiency in the dispatch of business attained.

The service ideals of the Company, special fitness of executives and employees for the tasks, the merited good-will of the employees, the standards of service to the consumer, have all received the greatest consideration in upbuilding the organization of the Pacific Gas and Electric Company, to the end that the Company may give a maximum service at a minimum cost to the people of California.

While every effort is bent in this direction the care of the employees, both male and female, is not overlooked. Among the special committees already mentioned, special attention is directed to the employees welfare committee, whose personnel consists of the President, Vice-President and General Manager, Vice-President and Treasurer, Vice-President in Charge of Public Relations and Service, Manager of Claims Department, Manager of Personnel De-

partment, Chairman and ex-Chairman of the Pacific Service Employees Association, and a member of the Employees Association elected at large. This committee meets once a month and discusses all matters pertaining to the welfare of the employees of the Company.

Then, there is the Pacific Service Employees Association whose membership enrollment now stands at 5500. It is to all intents and purposes—subject, of course, to the general policies of the Company—an independent organization of men and women banded together for educational and social purposes. Its executive board and committees are chosen not from those in positions of authority but from among the rank and file of "Pacific Service." Its central organization is located in San Francisco, where it maintains a suite of offices under the direction of an executive secretary who receives a salary and devotes his entire time and attention to the affairs of the Association. In addition, every territorial division of "Pacific Service" maintains a sectional branch of the Association with its separate officers and committees, and each of these elects a representative to the executive council of the parent body.

The Association offers special inducements to its members, including outings, and other amusement features. There is a death benefit plan which has been in operation for some time and a disability plan is now in process of formation. For the women members lunch and restrooms are provided at various "Pacific Service" headquarters and, where available, memberships in the Young Women's Christian Association with the many privileges of athletic recreation it affords. The Association issues a monthly bulletin under the direction of an editor and staff of assistants.

Meanwhile the Company has established a general employees' pension fund which is liberal in scope and provides for honorable retirement as a reward for long and faithful service.

In a word, the Pacific Gas and Electric Company is as progressive as it is far-reaching, aiming first of all to render perfect service to its consumers, at the same time protecting the interests of its stockholders and endeavoring to provide working conditions for its employees that are conducive to contented and loyal service.

PACIFIC GAS & ELECTRIC COMPANY

A California Corporation

Managed by Californians

Operated by Californians

"PACIFIC SERVICE" REPRESENTS (AS OF DEC. 31, 1922):

- 8,092 employed in all departments.
- \$200,000,000 capital invested in gas, electricity, railroads, steam and water plants.
- 54,000 square miles of territory in which it operates—an area greater than that of England and Wales.
- 25,265 stockholders, December 31, 1922.
- 36 counties of the State in which it transacts business.
- 645,410 consumers served with gas, electricity, water and steam as of Dec. 31, 1922.
- 1,800,000 people served in 36 counties, which is over 50% of the State population.
- 233 cities and towns in which it supplies service directly and through other companies.
- \$14,368,541 annual wages paid employes in 1922.
- \$2,821,726 taxes, State of California, for 1922.
- \$868,487 taxes, Federal Government, for 1922.
- 417,829 horsepower developed in 28 electric water-power plants.
- 173,592 horsepower developed in 4 electric steam plants.
- 591,421 total horsepower developed in 32 plants.
- 1,098,122,999 kw. hrs. sold in 1922. This is equivalent to the effort of 3,660,000 men.
- 12,353,849,000 cubic feet of gas sold in 1922.
- 18 gas plants.
- 53,900 miles of wire used in distributing electricity, which could be strung around the world over $1\frac{3}{4}$ times.
- 3,339 miles of mains used in distributing gas, approximately the distance between San Francisco and Boston.
- 1,100 miles of mains and ditches used in distributing water.
- 1,100 miles of track of street railways supplied with electric power.
- 64,955,675,000 gallons of water stored in 109 lakes and reservoirs. This amount of water would supply the city of San Francisco at the present rate of consumption for approximately 5 years.
- 93,940 acres of land owned in California.
- 197 parcels of property owned in cities and towns.
- 4,019,097 barrels of California Oil used in 1922.
- 156,814 horsepower in agricultural motors depending on "Pacific Service."
- 474,955 horsepower in mining, electric railways, manufacturing and other motors depending on "Pacific Service."
- 50,800 street lamps, gas and electric, lighted by "Pacific Service."
- 5,614,727 incandescent lamps nightly lighted.
- 1,110,679 horsepower connected to system.

PACIFIC GAS AND ELECTRIC COMPANY

Head Office: 445 Sutter Street

San Francisco

Branches in all principal cities and towns of thirty-six counties of North Central California

Pacific Gas and Electric Company Furnishes "PACIFIC SERVICE"

TO OVER 649,000 CONSUMERS OF

GAS ♦ ELECTRICITY ♦ WATER ♦ STREET RAILWAY

1,715,959 Total Population Served in Thirty-six of California's Counties

CITIES AND TOWNS SERVED BY COMPANY

	DIRECTLY		INDIRECTLY		TOTAL	
	No.	POPULATION	No.	POPULATION	No.	POPULATION
Electricity.....	170	1,117,541	61	156,411	231	1,273,952
Gas.....	61	1,134,687	2	8,600	63	1,143,287
Water (Domestic).....	18	61,719	8	15,488	26	77,207
Railway.....	1	65,908			1	65,908

Place	Population	Place	Population	Place	Population
¹ Alameda.....	28,806	¹ El Verano.....	400	² San Leandro.....	5,703
¹ Albany.....	2,462	¹ Emeryville.....	2,390	² San Lorenzo.....	500
¹ Alvarado.....	1,000	¹ Escalon.....	600	² San Martin.....	250
¹ Alviso.....	517	¹ Esposito.....	200	² San Mateo.....	5,979
¹ Amador City.....	377	¹ Fairfax.....	250	² San Pablo.....	500
¹ Anderson.....	750	¹ Fairfield.....	1,008	² San Quentin.....	3,000
¹ Angel Island.....	500	¹ Fair Oaks.....	300	² San Rafael.....	5,512
¹ Antioch.....	1,936	¹ Fall River Mills.....	300	² Santa Clara.....	250
¹ Aptos.....	306	¹ Fremington.....	300	² Santa Cruz.....	10,917
¹ Arbuckle.....	900	¹ Felton.....	300	² Santa Rosa.....	8,758
¹ Atherton.....	500	¹ Folsom.....	2,000	² Saratoga.....	500
¹ Auburn.....	2,289	¹ Forestville.....	250	² Sausalito.....	2,790
¹ Barber.....	500	¹ Fresno.....	45,086	² Sebastopol.....	1,493
¹ Belmont.....	375	¹ Gilroy.....	2,862	² Shasta.....	250
¹ Belvedere.....	616	¹ Glen Ellen.....	1,000	² Shelbyville.....	200
¹ Benicia.....	2,693	¹ Gonzales.....	500	² Sheridan.....	250
¹ Ben Lomond.....	400	¹ Grass Valley.....	4,006	² Smartsville.....	300
¹ Berkeley.....	56,036	¹ Gridley.....	1,636	² Soledad.....	400
¹ Biggs.....	683	¹ Grimes.....	500	² Soquel.....	400
¹ Bolinas.....	200	¹ Groveland.....	500	² Sonoma.....	801
¹ Brentwood.....	400	¹ Guerrero.....	800	² Sonoma.....	1,684
¹ Broderick.....	700	¹ Hamilton City.....	250	² South San Francisco.....	4,411
¹ Burlingame.....	4,107	¹ Hammonton.....	500	² Standard.....	500
¹ Byron.....	350	¹ Hayward.....	3,487	² Stanford Uni.....	2,700
¹ Campbell.....	600	¹ Hercules.....	373	² Stockton.....	40,296
¹ Capitola.....	300	¹ Hillsborough.....	931	² Suisun.....	769
¹ Carmel.....	638	¹ Hollister.....	2,781	² Sunol.....	350
¹ Cement.....	1,000	¹ Honcut.....	500	² Sunnyvale.....	1,675
¹ Centerville.....	1,000	¹ Hughson.....	250	² Sutter City.....	250
¹ Ceres.....	637	¹ Hone.....	1,000	² Sutter Creek.....	920
¹ Chico.....	9,339	¹ Irvington.....	1,000	² Tehama City.....	196
¹ Colfax.....	573	¹ Jackson.....	1,601	² Tiburon.....	400
¹ College City.....	250	¹ Jamestown.....	750	² Tracy.....	2,450
¹ Collinsville.....	200	¹ Kennett.....	464	² Tres Pinos.....	300
¹ Colma.....	1,500	¹ Kentfield.....	500	² Tuolumne.....	1,500
¹ Columbia.....	200	¹ Kenwood.....	300	² Turlock.....	3,394
¹ Colusa.....	1,846	¹ Keswick.....	200	² Vacaville.....	1,254
¹ Concord.....	912	¹ King City.....	1,048	² Vallejo.....	21,107
¹ Cordelia.....	300	¹ Knights Ferry.....	200	² Vina.....	300
¹ Corning.....	1,449	¹ Knights Land- ing.....	400	² Vineburg.....	200
¹ Corte Madera.....	607	¹ La Grange.....	200	² Walnut Creek.....	538
¹ Cotati.....	200	¹ Larkspur.....	612	² Warm Springs.....	200
¹ Cottonwood.....	500	¹ Lathrop.....	600	² Waterford.....	250
¹ Coyote.....	200	¹ Lewiston.....	200	² Watsonville.....	5,013
¹ Crockett.....	1,500	¹ Lincoln.....	1,325	² Wheatland.....	435
¹ Crow's Landing.....	300	¹ Live Oak.....	300	² Williams.....	650
¹ Daly City.....	3,779	¹ Livermore.....	1,916	² Willows.....	2,190
¹ Danville.....	400	¹ Loma Park.....	600	² Winters.....	903
¹ Davenport.....	300	¹ Lomita.....	500	² Woodland.....	4,147
¹ Davis.....	939	¹ Loonis.....	500	² Woodside.....	300
¹ Decoto.....	300	¹ Los Altos.....	500	² Yolo.....	350
¹ Del Monte.....	300	¹ Los Gatos.....	2,317	² Yuba City.....	1,708
¹ Denair.....	200	¹ Los Molinos.....	200		
¹ Dixon.....	200	¹ Madison.....	300		
¹ Drytown.....	200	¹ Manteca.....	1,286		
¹ Duncan's Mills.....	200	¹ Mare Island.....	600		
¹ Durham.....	250	¹ Martinez.....	3,858		
¹ Dutch Flat.....	750	¹ Marysville.....	5,461		
¹ Eldridge.....	500	¹ Maxwell.....	500		
¹ El Cerrito.....	1,505	¹ Mayfield.....	1,127		
¹ Elmira.....	350	¹ Menlo Park.....	900		

Unmarked—Electricity only.

¹—Gas only.²—Gas and Electricity.³—Gas, Electricity and Water.⁴—Gas, Elect. and St. Railways.⁵—Electricity and Water.⁶—Electricity supplied through other companies.⁷—Gas supplied through other companies.⁸—Water supplied through other companies.

"PACIFIC SERVICE FACTS"

During the year 1922 the Pacific Gas and Electric Company generated by hydro, 1,120,762,273 kwh. which was 29.73% of the total generated by hydro in the State of California, and 6.5% of the total generated by hydro in the United States.

This amount of hydro power was 81.7% of the total power generated by this Company as compared with 36.2% which is the percentage of power generated by hydro in the United States.

Total Cities
and Towns... 1,347,844
Add Suburban
Population... 368,115
Total Popula-
tion Served... 1,715,959

*BACK OF PACIFIC GAS AND
ELECTRIC COMPANY SE-
CURITIES ARE THE RE-
SOURCES OF NORTHERN
CALIFORNIA*

The Pacific Gas and Electric Company furnishes services of a nature so essential to the agricultural, industrial and commercial development of the territory in which it operates that the prosperity and future growth of Northern California and of this Company are largely interdependent.

The Company's securities, from the sale of which funds are derived to provide for the continual enlargement and extension of its facilities, are held by over 58,000 individuals, who are thus associated in one of the most substantial and progressive enterprises of its kind in the entire country.



PACIFIC SERVICE MAGAZINE

PUBLISHED MONTHLY BY THE PACIFIC GAS AND ELECTRIC CO. SAN FRANCISCO



BLOSSOM TIME IN SANTA CLARA VALLEY

Vol
14

MAY 1923

No
12

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Pacific Service Magazine

Volume XIV



Number 12

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Heads of our company's Department of Engineering. In the center is Mr. A. H. Markwart, vice-president in charge of engineering. At the top is Mr. J. P. Jollyman, chief of division of hydro-electric and transmission engineering, to the left Mr. S. J. Lisberger, chief of division of electric distribution and steam engineering, to the right Mr. I. C. Steele, chief of division of civil engineering. At lower left is Mr. F. M. Harris, chief of bureau of specifications and estimates, at lower right Mr. O. A. Knopp, chief of bureau of tests and inspection.

A New Pit Project Required to Meet the Anticipated Power Requirements of the "Pacific Service" System

By R. A. MONROE, Department of Engineering

The following is substantially a resume of a discussion of this subject by Mr. A. H. Markwart, Vice-President in Charge of Engineering, presented at a recent meeting of heads of departments of "Pacific Service"

EDITOR PACIFIC SERVICE MAGAZINE

Pit River No. 1 plant is completed and contributing its daily quota of nearly one million kilowatt hours to the output of "Pacific Service." The two Hat Creek plants which were put in operation in the fall of 1921 add approximately 300,000 kilowatt hours per day, making the present daily output from the Pit River Plants thus far constructed nearly 50 per cent of the hydro-electric power generated by the twenty-

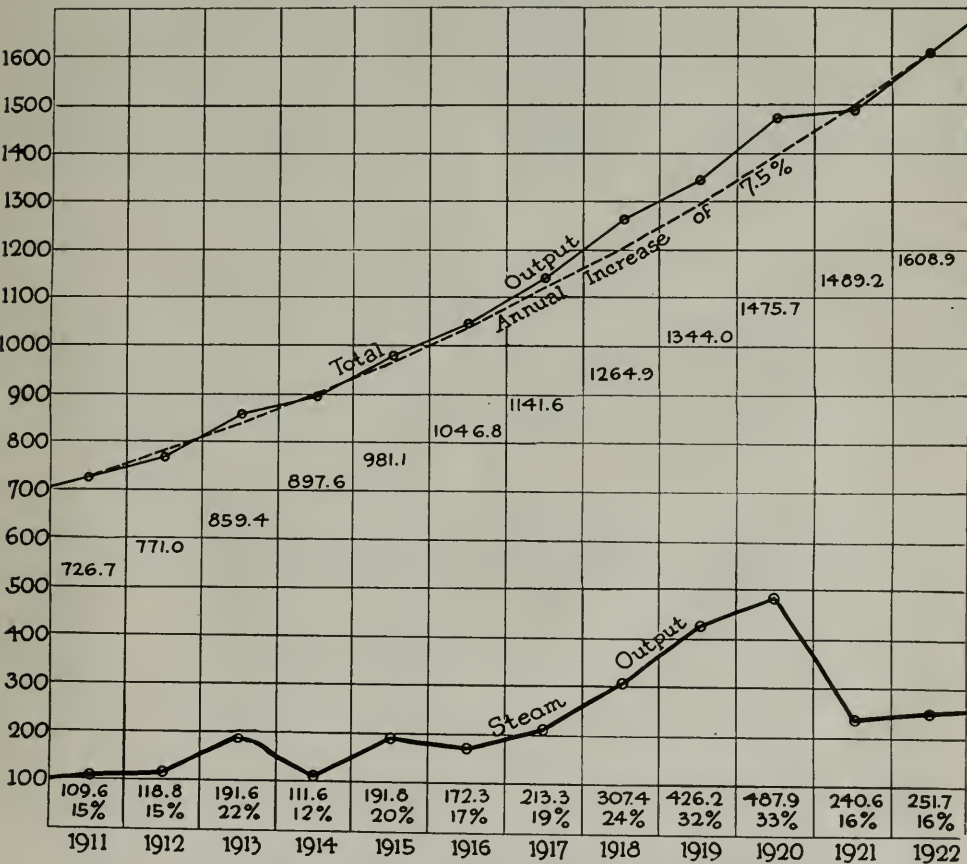


Fig. 1---P. G. & E. system output in millions of kilowatt hours, showing an uniform annual increase of 7½ per cent compounded annually

ty-four Sierra plants which constituted the "Pacific Service" system prior to 1921.

These recent additions to our system barely meet the shortage in hydro-electric generating capacity which had been accumulating since 1917 when the prosecution of the war interrupted all hydro-electric construction activities. Our electric load is rapidly increasing and in order to keep pace with the demand, it will be necessary to proceed immediately with the construction of an additional plant on Pit river.

The construction of a large hydro-electric development requires at least two years, and possibly more, while a steam plant can not be built in less than a year. In order that the necessary facilities may be completed by the time they are needed, it is necessary to forecast the probable requirements of the system several years in the future. The Department of Engineering has made a careful analysis of the many factors which require consideration, and after projecting the load requirements for a period well into the future have established a program of construction to meet the anticipated increase. The growth of the past seems to afford the most reliable basis upon which to predict the requirements of the future, and this method has been followed in establishing our anticipated demands.

The kilowatt hour output of this company and the companies now consolidated with it for the past 11 years is shown by Figure I. On this chart the upper broken line represents the annual generated output in millions of kilowatt hours. The dotted line which closely follows the general shape

of the actual load line is based upon a uniform annual increase of 7.5 per cent compounded annually. It is evident that the general character of our growth is quite accurately represented by this line and the assumption is made that this same percentage of increase will continue until 1935.

In carrying this load, it has in the past been necessary to generate a considerable amount of energy by steam plants. The lower broken line represents the kilowatt hours that have been carried on steam during the period covered by the chart. The effect of the three dry seasons extending from 1918 to 1920, combined with the interruption in construction of new hydro plants during the war, is indicated by the marked increase in steam generated energy during this period.

It is not sufficient, however, to predict the energy requirements in terms of kilowatt hours. The installation must be capable of meeting the peak or maximum load demands which have a seasonal as well as a daily variation. The daily load factor of the "Pacific Service" system, that is, the relation of daily peak to average load, averages nearly 75 per cent. Of more interest, however, is the annual load factor, for it is the peak established by the maximum yearly demand which determines the installed capacity required. Our annual load factor for the past few years has been approximately 63 per cent, a very high figure indeed when compared with many other systems throughout the country.

Table No. 1 which follows shows the anticipated annual kilowatt hour require-

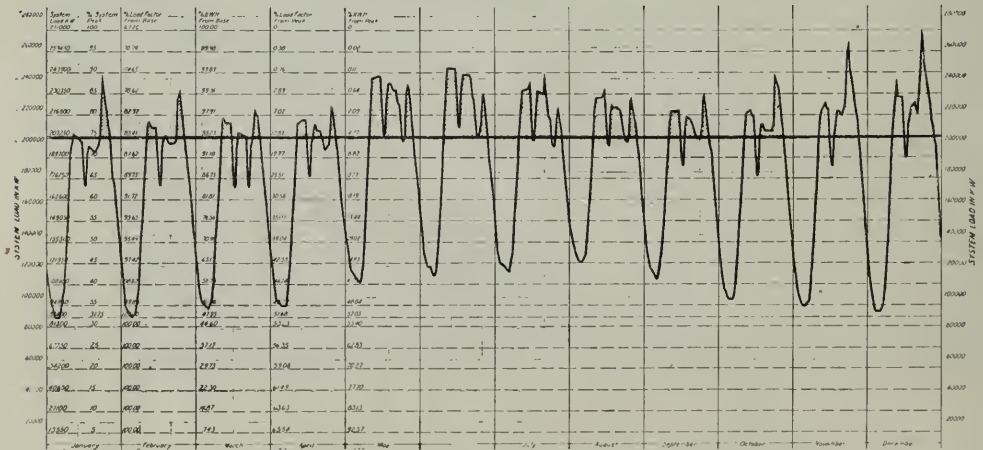


Fig. 2---Typical daily load curve of the "Pacific Service" system

ments and the system average and peak loads in kilowatts for the period 1922-1935 inclusive, building on the load of 1921 as a base, and assuming an annual increase of 7.44 per cent, compounded annually, with an annual load factor of 63 per cent.

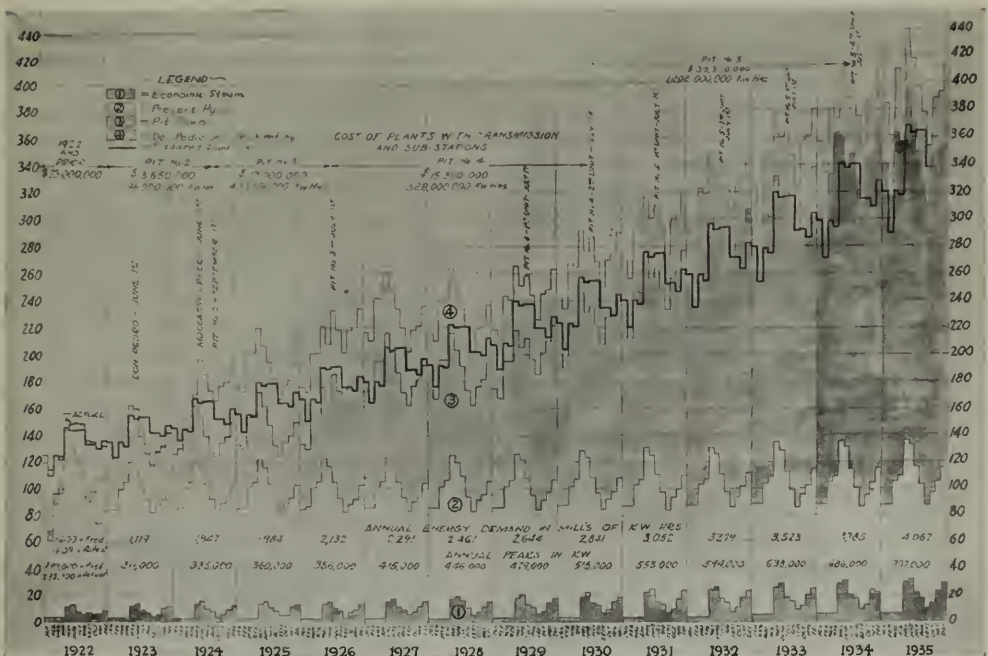


Fig. 3---Monthly load requirements estimated for the period 1922 to 1935

Table No. 1
ANTICIPATED GROWTH OF LOAD 1921 TO 1935 INCLUSIVE
FOR
PACIFIC GAS AND ELECTRIC COMPANY

Based on past ten-year rate of growth of 7.44 per cent and an annual load factor of .63

Year	Millions of kw. hrs.	Average Load in kw.		Peak Load in kw.	
		Total	Increase	Total	Increase
*1920	1475.7	168,000		259,000	
*1921	1489.2	170,000	2,000	267,000	8,000
1922	1600.0	183,000	13,000	290,000	23,000
1923	1719.0	196,000	13,000	311,000	21,000
1924	1846.9	211,000	15,000	335,000	24,000
1925	1984.3	227,000	16,000	360,000	25,000
1926	2131.9	243,000	16,000	386,000	26,000
1927	2290.5	261,000	18,000	415,000	29,000
1928	2460.9	281,000	20,000	446,000	31,000
1929	2644.0	302,000	21,000	479,000	33,000
1930	2840.7	324,000	22,000	515,000	36,000
1931	3052.0	348,000	24,000	553,000	38,000
1932	3279.1	374,000	26,000	594,000	41,000
1933	3523.0	402,000	28,000	638,000	44,000
1934	3785.1	432,000	30,000	686,000	48,000
1935	4066.7	464,000	32,000	737,000	51,000

* Actual records.

This prediction was made in January, 1922 and it is interesting to note that the actual output of 1922 was 1609 million kilowatt hours, which compares with a predicted output of 1600 million kilowatt hours, while the actual and predicted peak loads were 293,700 kilowatts and 290,000 kilowatts respectively.

This table shows that the normal annual increase in the peak load of our "Pacific Service" system at the present time is of the order of 25,000 kilowatts, which will re-

quire the construction of a plant approximately the size of Pit No. 1 every two years. Also, if our present rate of growth continues until the end of 1935, we will then be required to construct a plant similar to Pit No. 1 every year in order to supply the demand.

In establishing a program of construction to meet this growth, several factors have to be considered. Although Table No. 1 gives the annual requirements both in peak and in output, the load of the system has a

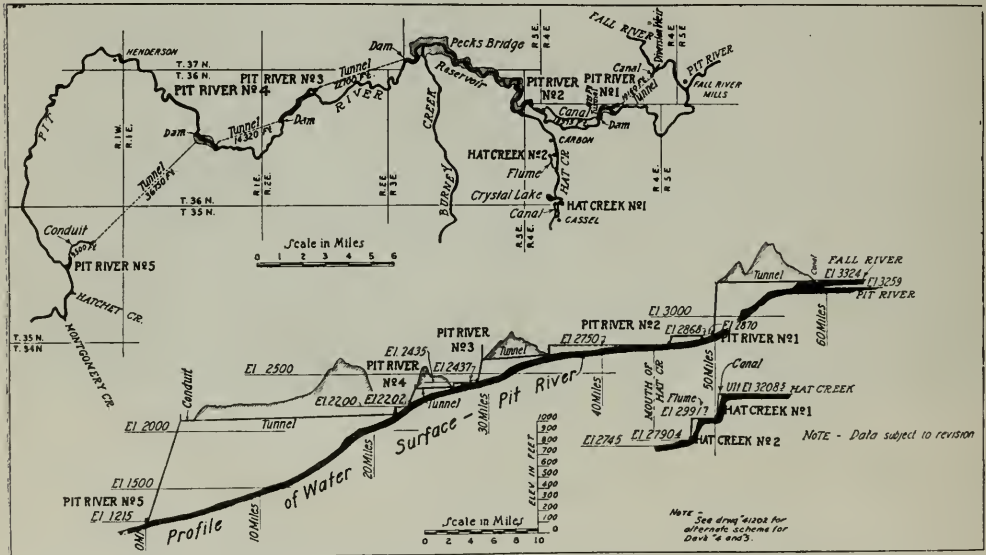


Fig. 4---Map and profile showing the general plan of Pit River hydro-electric development

TABULATION OF PLANTS INDICATED IN THIS CHART:

	HAT CREEK			PIT RIVER					
Item.....	No. 1	No. 2	No. 1	No. 2	No. 3	No. 4	No. 5	Total	
HEAD FEET:									
Total.....	216 ^a	201 ^s	454	117 ^s	313	233	985	2520 ^a	
*Effective.....	209	193 ^s	419	102	280	211	911	3325 ^s	
FLOW CFS									
Conduit Capacity.....	600	800	1800	1800	3000	3000	3000	....	
†Average.....	332	503	1218	1442	2371	2385	2368	....	
‡Minimum.....	273	413	1036	1212	2055	2060	2025	....	
OUTPUT KW									
\$Maximum Capacity...	9000	10600	56300	13200	60500	45500	197000	392100	
#Average.....	4210	6690	36000	10000	45700	34500	147500	284600	
\$Minimum.....	3440	5360	32500	8900	43900	32800	138000	264900	
INSTALLED CAPACITY									
K. V. A.....	12500	12500	70000	15000	81000	60000	250000	501000	

*NET HEAD ON TURBINES FOR MAXIMUM CONDUIT CAPACITY.
†ESTIMATED USABLE AVERAGE MONTHLY FLOW (1917 TO 1922).
‡MINIMUM USABLE AVERAGE MONTHLY FLOW.
\$BASED ON 85% TURBINE AND GENERATOR EFFICIENCY FOR PIT NO. 2, NO. 3, NO. 4 AND NO. 5.
#EFFICIENCY 70% FOR HAT NO. 1 AND 80% FOR OTHER PLANTS.

marked seasonal variation. By reference to Figure 2, which shows a typical daily load curve for each month of the year, it is seen that during the summer months there is a broad heavy demand continuing through nearly 16 hours out of the 24, while the winter months have a sharp increase in peak occasioned by the lighting load, lasting for a few hours in the evening. The hydro output of our present Sierra plants has a seasonal variation, a maximum in the spring or runoff months when water is plentiful. For these reasons an analysis has been made to determine the monthly average and peak loads of the system. To determine this monthly variation, the ratio of the monthly peak and average loads to the yearly totals for the past five years was determined, and using these ratios, the predictions for the future have been established upon a monthly basis. The monthly load requirements for the period 1922 to 1935 are shown by the heavy broken line of Figure 3. The total energy required in each year under this line is the same as tabulated in Table No. 1. A similar chart has been developed for monthly peak loads but it is not reproduced here, the annual peaks to be expected each year being shown in figures on the chart as also are the total annual kilowatt hour requirements.

Having established the monthly requirements of the system as indicated above, the next step is to determine the source of energy to meet the anticipated demand. The first consideration is the amount of steam-generated energy which should be supplied. An exhaustive study of the steam problem indicates that it is economical to carry or comb off 25 per cent of the annual peak load of the system on steam, the percentage of kilowatt hours represented by this peak being rather small, as it varies from two to not more than 10 per cent of the total energy requirements. The relative amount of steam is represented by the cross hatched area above the heavy 75 per cent line on the typical daily load chart, Figure 2, and the monthly requirements of steam generated energy for best economy are indicated by the lowest shaded area on Figure 3.

Directly above the economic steam requirements of the system is plotted the normal output of our present hydro system exclusive of the Pit plants, and including the minimum amount of hydro power which this company is obligated to purchase from other companies by virtue of long term contracts now in force. On a dry year when the water supply is deficient, these hydro plants may not furnish the full amount indicated leaving a deficit to be met by increasing the amount carried on steam.

The remaining area immediately below the load line of Figure 3 represents the energy which must be supplied by the construction of new projects to meet the anticipated demands of the "Pacific Service" system.

It is proposed to obtain the hydro energy required to meet the anticipated requirements by the construction of a series of plants on the Pit river. The general scheme of development, as has frequently been announced, consists of five plants on the Pit river, developing a total head of 2103 feet, and two additional plants on Hat Creek under a combined head of 414 feet. The two Hat Creek plants and Pit No. 1 are now in operation and Pit plants Nos. 3, 4 and 5 will follow. Pit No. 2 will be constructed after the more favorable projects are developed. A map and profile showing the general plan of development as proposed but subject to minor revisions is shown by Figure 4. When completed, the Pit will have a total installed capacity of 501,000 kva., and produce a total annual output of 2500 million kilowatt hours, or two and one-half times the output of all the hydro-electric plants of the "Pacific Service" system excluding the present Pit plants.

The several dates of completion for the remaining Pit plants have been tentatively established as follows:

Pit No. 3—Completed July, 1926.

Pit No. 4—First Unit completed July, 1929.

Second Unit completed July, 1930.

Pit No. 5—First Unit completed July, 1931.

Second Unit completed July, 1932.

Third Unit completed July, 1933.

Fourth Unit completed July, 1934.

Pit No. 3 is scheduled for the summer of 1926 but it is planned to anticipate this time for completion some eight months.

The estimated monthly power output of the Pit plants, completed according to the above schedule, has been plotted on Figure 3 above the area representing the output of our present plants. It is to be noted that as the system becomes larger there will be at certain times a seasonal surplus of power. This is very desirable, as it will afford opportunity to shut certain plants down for purposes of maintenance and repairs and enable the efficiency of the system to be maintained at a high level.

The construction of the Moccasin Creek plant by the city of San Francisco and of the Dom Pedro plant by the Turlock-Mo-desto Irrigation District, introduces a modifying element into the general power situation. A portion, if not all, of the out-put of these plants will necessarily be mar-keted in the territory now served by "Pacific Service," and whether controlled by this company or not will aid in meeting the

growth of load predicted for our system. Since it is necessary that this power be con-sidered in any program of construction which we may set up, we have plotted the output of these plants above the output of the Pit plants in order that the total amount of energy available to meet the growth in the territory served by Pacific Gas & Elec-tric Company might be evident. From Figure 3 it is obvious that if this energy is all to be absorbed by "Pacific Service" there will be some surplus of power, but it is certain that the system of the Great West-ern Power Company and, possibly, the sys-tem of some other companies will to a cer-tain extent be affected, and we believe that the Pit construction program as indicated above is sufficiently modified to allow for the absorption of the Hetch Hetchy and Dom Pedro energy.

Cost is of interest to everyone concerned, but particularly to those responsible for securing the necessary capital to construct these new plants. The building of a hydro-electric plant in the mountains does not

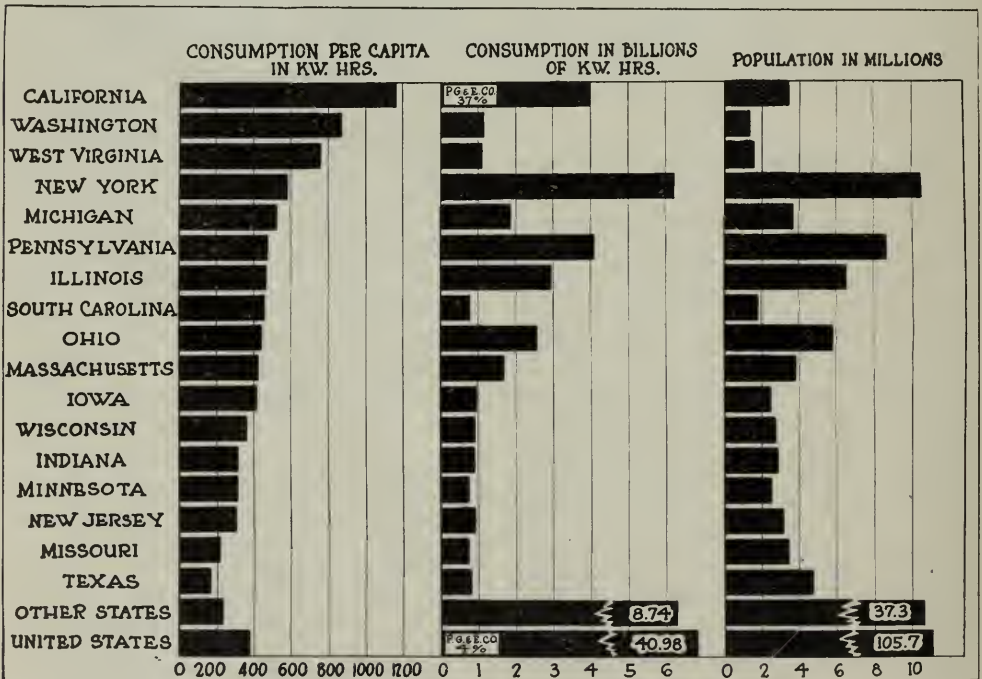


Fig. 5---Chart showing per capita and total consumption of electric energy in the United States

constitute the entire expenditure required. The transmission, substation, and distribution facilities also require a heavy capital outlay. General estimates have been made of the costs of the projected Pit developments, including the transmission and transformation costs to points of delivery on the low tension side of substations in the bay regions. The resulting total costs for the several proposed Pit developments as indicated on Figure 3, are as follows:

Pit Plants constructed to date	-	\$23,000,000
Pit No. 3 with transmission and substations	- - - - -	17,000,000
Pit No. 4 (ditto)	- - - - -	15,350,000
Pit No. 2 (ditto)	- - - - -	3,650,000
Pit No. 5 (ditto)	- - - - -	39,300,000
Total	- - - - -	\$98,300,000

In passing, it is of interest to note some figures recently compiled by the U. S. G. S.

Bureau of Power Resources showing the per capita and total consumption of electric energy in the United States. As shown by Figure 5 the consumption of power per capita in California is larger than that of any other State in the Union, averaging about 1150 kilowatt hours per capita in 1921. Washington was next with less than 900 kilowatt hours per capita, while the average of the entire United States was less than 400 kilowatt hours per capita, or about one-third that of California. In total output of electrical energy, steam and hydro combined, New York is first, Pennsylvania second, with California a close third, but California leads all other States in hydro production. Of California's total the Pacific Gas & Electric Company contributes 37 per cent, and of the United States 4 per cent, a record of achievement which speaks for itself.

In Honor of Superintendent James Martin

The evening of March 30 was marked by a long-to-be-remembered farewell party given in honor of Mr. James Martin, who leaves Pit One to take charge of the new construction work at Lake Fordyce in the Sierra Nevada mountains. Friends of Mr. Martin who had worked with him gathered together to bid Mr. and Mrs. Martin goodbye. In a body they brought them to the recreation hall, where the committee in charge, under the chairmanship of Mrs. Jay Brown, had prepared for the evening's entertainment. This consisted of vocal selections, dancing, speeches, presentation of the gift and refreshments.

Mr. R. B. Gray and Mr. M. P. Werry spoke of the work done here and of the pleasant camp life attributed very largely to Mr. Martin. They expressed their regret and the regret of the entire camp at his leaving and wished him Godspeed in his new undertaking. As a token of the regard in which the Martins were held, Mr. Grover Green, spokesman of the evening,

presented a gift, consisting of odd pieces of silverware to match and supplement the table set which the Martins already had.

Taken completely by surprise, Mr. Martin's emotion made it quite difficult for him to express his appreciation. This he managed to do, however, in a very able and appropriate speech. For the work completed, he said, credit was due all. Their co-operation, harmony and steadfastness on the job had made the three five-power plants possible, which the happy camp life and social and athletic gatherings had contributed to the general success. His deepest wish was that the same co-operation and good will be shown the new superintendent as had been shown himself. He said that he was going back to Placer county where he had worked many years and where he had a multitude of friends, but he greatly regretted leaving the large number of good friends made during his three years' work in the vicinity of the Pit river.

A. W. K.

Fur and Feathers Make Line Trouble

*Both Animals and Birds Appear Partial to Our Company's
High-voltage Transmission Wires, But Their
Experience Costs Them Dear*

By B. N. MERRITT, Assistant Load Dispatcher

It is related of George Stephenson, the English engineer, that when he appeared before a committee of the British Parliament to discuss the proposed construction and operation of a steam railroad, he was asked this question "Suppose a cow should get on the line in front of your train, would that not be a rather awkward circumstance?" His reply, given with sententious gravity, was, "Yes, very awkward—for the cow."

The following article deals in interesting fashion with another kind of line and other species of trouble-maker, but the application of the Stephenson incident appears natural enough.

EDITOR PACIFIC SERVICE MAGAZINE.

During the year 1922 the transmission system of the Pacific Gas & Electric Company suffered thirty severe disturbances, due, variously, to curiosity, blunders or suicidal mania on the part of furred and feathered members of the bird and animal kingdoms. Despite the fact that all our high voltage lines are constructed with spaces of several feet between pairs of wires, it is possible for an animal with a long tail or a bird with large wing spread to touch or approach closely to two wires at once, thus causing a short-circuit and upsetting the equilibrium of the electrical system. Needless to say, the penalty of such an error in judgment is instantaneous and certain death for the offender.

The nature and habits of the different varieties of birds and animals, as well as their size and the scope of their activities, determine the percentage of probability of their causing trouble for the power company. Birds of prey, such as eagles, hawks and owls, and predatory animals of the cat family are leaders in the list of trouble-makers. The crane, also is a frequent disturber of the peace, combining poor eyesight and awkwardness with unusual length of limb and wing. Tree squirrels quite frequently commit suicide at the expense of the company, their long, bushy tails acting as conductors of electricity quite as well as though reinforced with wire.

During the past year nine hawks of various kinds suicided via the high voltage route, and it is very probable that most of the fatalities were due to the hawk's habit of utilizing a convenient power line pole or tower as a lookout station from which to swoop suddenly down upon some un-

suspecting rabbit, chicken or mouse. Some observers state that a hawk, suddenly attacked in flight while carrying away the prey upon which he has pounced, and dropping his kill in order to defend himself from his enemy, has thereby unwittingly furnished the current-carrying medium for a short-circuit and lost his dinner as well.

Owls and cranes, in their endeavor to relieve the monotony of the power line repair-man's existence, tied the score in 1922 with five cases to the credit (?) of each. It is interesting to note that during the early spring and late fall months, while the lowlands are marshy and well supplied with frogs and fish, the crane widens the scope of his activities sufficiently to encroach upon the territory through which the power lines pass, and for this reason practically all the accidents to the crane family occur during these periods. One of the company's employees, whose duties make it necessary for him to visit many out-of-the-way places, relates an incident as interesting as it is unusual. While traveling across the delta lands near Stockton, on a road paralleling one of the 60,000-volt transmission lines of our company, Mr. B—— observed a crane rising from a nearby marsh with a large fish held firmly in its beak. Idly watching the progress of the bird, he was astonished to note that it flew directly to one of the poles supporting the high voltage transmission line and alighted on the insulator carrying one of the wires. Stopping his machine, Mr. B—— watched and awaited developments. The crane leisurely finished his meal and prepared to move on in search of another, but as the company had unfortunately neglected to

provide napkins for the guests in this particular restaurant, Mr. Crane was forced to manicure his beak on something else, and elected to make use of another of the high voltage wires carried on the same pole. The results were spectacular as well as instantaneous, and, as Mr. B—— puts it, "It was a very shocking experience for the crane."

Unlike the crane, the owl knows no seasonal limitations in his dealings with the power companies but expresses his individuality by confining his physical contacts with power lines to certain times of the day. Practically all the cases of trouble caused by owls coming in contact with high voltage lines occur either at daybreak or at dusk, and although the assumption has probably never been substantiated by actual observation, it is safe to state (knowing the nocturnal habits of the bird), that most of these accidents occur either while friend owl is settling himself on the convenient pole or tower for his day-time siesta or, if he is lucky enough to avoid trouble at the beginning of his nap, when darkness arouses him to the business of life he spreads his wings for flight—and occasionally makes a quick and painless trip to the "Happy Hunting Ground."

All the cases of power line trouble caused by birds cannot be properly blamed to birds of prey, for sometimes even domesticated fowls go astray. Turkeys, and even chickens, striving to escape from the clutches of dogs or coyotes, have been electrocuted while attempting to use the top of a power line pole or tower as a "safety station." Last fall, a turkey herder driving his flock to market stopped for lunch beside a small stream. A nearby power line attracted one of the turkeys as a possible resting place of an exclusive nature, and before the herder could interfere a potential Thanksgiving dinner had been prematurely roasted.

Ordinarily, members of the cat family are inclined to be suspicious of any strange or unusual structure erected in their domain, and instances of trouble due to cats, (wild or tame), coming in contact with power wires on poles or towers are not very numerous. Under stress of fear, or in the excitement of the chase, it sometimes happens that the instinctive caution of the cat is temporarily dulled and a few cases of

accident have been brought forcibly to our attention. On a 60,000-volt line which runs through Redwood Canyon, near Oakland, wildcats of a bold and curious nature have caused considerable trouble during their investigations of the company's property, two fine skins now being in the possession of members of the local line repair crew as trophies and partial compensation for the trouble and inconvenience caused by their original wearers.

From the foregoing it may be rightly concluded that our feathered friends are the chief offenders insofar as transmission lines are concerned. However, the four-footed and furry tribes occasionally interfere with the operation of another and no less important branch of the power company's properties, namely, the distributing stations and underground cables. Rats, mice and cats add their quota of disturbing factors in the peaceful (?) existence of operators and repair men. The rats and mice accept gratefully the ready-made homes provided for them by the cable ducts and conduits so thoughtfully furnished by the power company, and appreciate to the full the succulent and tender cloth and rubber insulation on the wires. Of course, there are difficulties at times, but the animals who cause them have ceased to be interested, and the grief is the company's. The cats enter the picture in their capacity as hunters, but although the hunting is good the hazard imposed by the network of high voltage wires and bus-bars through which the hunter must thread his way renders the proceeding dangerous to the cat and exceedingly interesting to the company.

Considering the extent of the company's transmission network, and the wild and mountainous nature of the country which many of the high voltage lines traverse, it is not surprising that the furred and feathered denizens of this wilderness are prone to treat the power lines with undue familiarity. The wonder is that more fatalities do not occur. As a matter of fact, the average for the past ten years has shown that only about five per cent of the total number of serious disturbances affecting our electrical system can be charged to the activities of birds and animals, this percentage being consistently much less than that due to floods, storms, lightning and other forces of nature.

New Warehouse Building for "Pacific Service" in Oakland

Reinforced Concrete Structure Takes the Place of an Old Landmark That Dated Back to 1867

By H. W. BEEKMAN, Manager's Office, East Bay Division

In 1921 one of Oakland's conspicuous landmarks was removed when the old brick building at First and Washington streets was wrecked.

This old building was the site of Oakland's first gas plant, having been erected in 1867 to house the first coal gas generating apparatus. Later another building of the same type was put up on Second street, between Washington and Broadway, where the first water-gas set was installed. The holder was placed on the corner of Second and Washington, and while today it would be about the size of a model for the smallest ones now in use, it seemed at the time spoken of quite adequate to meet any and all demands upon it for years to come.

In 1884, the first generators to give Oakland electricity were set up and room was easily found for them on the same lot as the gas works, so that the entire producing and distributing department of both gas and electricity were contained within the one space of ground instead of being spread over acres as at present.

Gradually the growth of the community made larger producing plants necessary and the gas plant and electric generating plant

were forced to find other sites where more room was available for development.

In 1921 only the meter department, warehouse and the transformer shop were left and these were crowded and working under difficulty. Temporary quarters were found for the these departments and the wrecking of old buildings that for over fifty years had held up under all demands was put under way. In their place the two-story reinforced concrete building shown in the accompanying picture was erected and fittingly opened last July. It is 200 feet long, taking the entire block on Washington street from First to Second, and 200 feet deep. The walls are practically all glass, giving good light to every department and better working conditions for the many men employed in the various departments housed there.

Practically half of the lower and a portion of the second floor is used by the warehouse department, the First street frontage and south half of the Washington street side being used for this purpose. With its raised floors and receiving and discharging doors on both the south and rear sides, material can be much more quickly and



Exterior view of the company's new warehouse building in Oakland

easily handled than formerly.

The office on the southwest corner is light and sunny and is far more pleasant for its workers than its dingy predecessor.

The company garage occupies the northern half of the lower floor.

In the rear of the building an auto driveway extends from Second to First streets, covered its entire length with a glass skylight, as also is the parking or auto-storing area still further back, where there is room for fifty cars and trucks.

Facing on this driveway, in the center of the building, is the gas meter department, with its office and distributing room for meters.

In the center of the lower floor are the lavatories, washroom and lockers, clean and sanitary, accessible to all departments.

The stairs leading to the gas meter shop, electric meter shop and underground department open on the Washington street side, between the garage and warehouse.

The gas meter repair shop is about 100 by 122 feet in area and faces Second and Washington streets. Here all the gas meters for the East Bay Division are repaired and tested.



Electric meter shop---Second floor

The elevator is in center of the building and material for the upper floor of the warehouse department and all meters of both gas and electric meter departments are handled by it.

The electric meter and underground departments divide the balance of the upper floor.

Material and supplies to the value of approximately \$2,000,000 were handled by the warehouse in 1922.

The clean white building occupied by the departments enumerated above, is a far cry from the dingy, cracked red-brick structures

that once held within their walls all the activities of the Oakland Gas, Light and Heat Company. The opening of the new warehouse building last July was not, perhaps, so much an epoch-making event as was the completion of its predecessor, for the first building made possible the first distribution of comfort and convenience in the shape of gas for fuel and light.

At the present rate of growth of the community served it is a certainty that the new building will not serve its present departments for 55 years.



Gas meter shop---Second floor

Factory Heating Which Pays Dividends

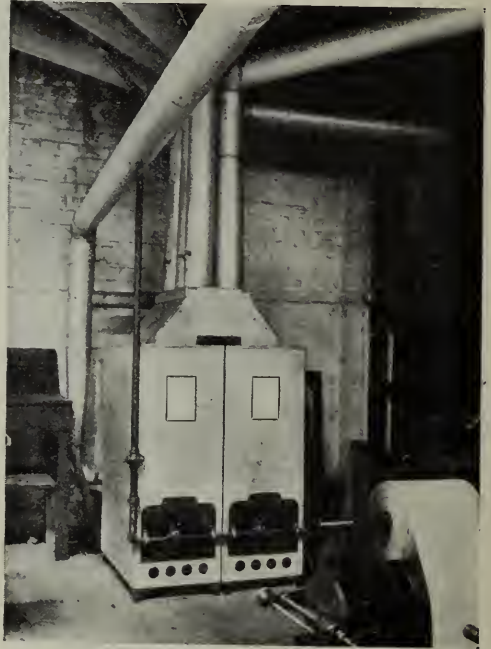
By R. W. BELSON, San Francisco Division

To one whose duties bring him in contact with different classes of manufacturing and industrial plants, it would be difficult to pick out a busier place than the plant in the top loft of the building at 25 Jessie Street, San Francisco, operated by Hancock Brothers, Inc.

This firm prides itself on furnishing the trade with novel, progressive and up-to-date printing of all kinds, and an inspection of the samples of work turned out by it shows that its product is not confined to San Francisco, nor to California, but travels far beyond our State boundaries, a fact which must certainly stir up some measure of pride in every loyal San Franciscan.

Upon entering this plant, the thing which strikes one the most forcibly is the lack of friction throughout the whole place. The shop is filled with machinery of all kinds necessary to the manufacture of the thousand and one products turned out, and where there is no machinery the space is occupied by rolls of different kinds of paper, stacks of cardboard, work tables, benches, etc., until it gives one the impression that it is a battle for supremacy between the machinery and the other objects, as to which one will be crowded off the floor. Around and through all this conglomeration there is a working crew of from twenty-five to thirty members, all of whom seem to radiate a certain comfort and who represent continual action as each member performs his respective duties. Yet, all this action goes on in the most harmonious manner, a condition which speaks for efficiency and good work.

However, the main purpose of this article is not to laud any one particular firm, as such, but to point out reasons for the harmony and comfort shown and felt in a well-run business. Indeed, without the comfort there would be no harmony.



Two Hall Units installed at Hancock Bros., Inc., 25 Jessie Street. East wall. This installation, in addition to furnishing heat to the building, also supplies heat to dry room and also keeps the ink warm on multicolor press.

If you could get Mr. Hancock's attention for a while he might tell you of the difficulty they had experienced for so long a time, of too much cold in the winter months and too much heat in the summer months, until, in the latter part of 1921, they decided that something must be done to overcome these conditions. At this time one of our "Pacific Service" engineers happened to call on this firm and learned that they had about decided to install a system of hot water radiation. A plan of hot air heating with gas fuel was proposed by the engineer, and turned down by the firm as it would never be able to do the work. It was pointed out that the space was too large to be heated with gas without costing a

fortune each month. Then, three sides of the building were exposed to the weather, there was no ceiling, nothing between the floor and the sky but a thin board roof, with a covering of tar and gravel, and this roof had many glass skylights in it, which let in the light but let out the heat.

Again, there was an elevator shaft to be considered, which acted as a big chimney in pulling the heat out of the room.

But Hancock Brothers is a practical and progressive organization, and while they did not believe it could be done, they listened. The room was measured and found to contain approximately 150,000 cubic feet of space to be heated. Many pictures were drawn and much figuring done, and after several visits the engineer was told to go ahead and make the installation.

The installation consisted of four Hall

Unit gas furnaces. Two were placed near the east wall and two near the west wall, and a 1/6 h.p. 110 A. C. motor and fan was connected to each pair of furnaces. A common header or top was built on top of each pair of furnaces and six 6-inch ducts installed in each header. These ducts were run up to the ceiling joists, then were carried along these joists to different parts of the room, thence down alongside of a pillar, or partition, to within about 12 inches from the floor, the bottom end being provided with an elbow to direct the warm air along the floor.

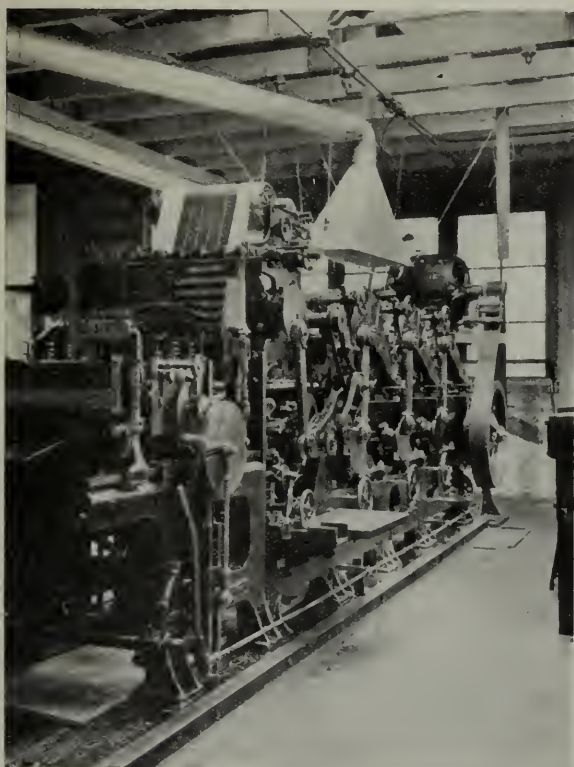
Heretofore there had been much difficulty and loss of time with a multicolor press which would not do its best work on account of the ink on the heads getting cold. This difficulty was overcome by building a spreader on the end of one of the 6-inch ducts and directing the heat to these heads.

Each duct is provided with a damper just over the furnace, which allows regulation of heat through the ducts and, therefore, less or more heat to any portion of the room as necessity may demand.

When the installation was finished and the system tried out, it was found to fulfill every claim made for it. The fan drew the cold air from the floor into the furnace and then forced it through each duct until the whole place was flooded with a comfortable warmth, while the odors and all products of combustion were carried outside the building through a flue connected to each pair of furnaces.

The vital part of the system, however, was yet to come, and that was the cost of operation. This, however, also proved a pleasant surprise.

Mr. Hancock says he can not give in real figures the exact amount of increased efficiency in the shop since this system was installed, but that this increase is sufficiently great to be very gratifying to their concern.



Heating duct installed over multicolor press to keep the ink warm. Hancock Bros., Inc., 25 Jessie Street.

“Pacific Service” at the Radio Show

“Pacific Service” was conspicuous at the recent American Radio show, held in the Exposition Auditorium, San Francisco, April 3 to April 8.

Our company’s booth was located in a prominent position and its outstanding feature, the illuminated map, showing the network of transmission lines covering the greater part of north-central California, attracted as much attention as any other single display on the floor. From remarks passed by visitors, it could be gathered that “Pacific Service” is now very well advertised as to its position in the state. Besides, such strides have been made in the electric industry generally and, particularly, by our own engineering department, that it would seem that there is no limit to what may be expected of us in the future in the way of electric power generation and distribution. The growth of our “Pacific Service” system seems to impress people as being typical of California.

It was particularly gratifying to hear from numbers who talked to attendants at

the booth that some one member of their family, either in the past or in the present, had worked for the Pacific Gas and Electric Company.

In the way of literature, there was given out the little company booklet, entitled “Power Resources.” Intelligence was used in the distribution of these to people who were there to gain knowledge, and as the show progressed the demand for these booklets increased. So far as the illuminated map was concerned it seemed to be generally understood with the exception of the tie lines, and explanation of these was given freely.

Another exhibit that aroused a great deal of interest was that of our 220,000-volt transmission line, with its cable, its cross-arms, insulators, etc.

The attendants at the booth were secured from the creative and competitive ends of “Pacific Service.” The results showed that our company’s participation in the affair was well worth while. F. T.



Our "*Pacific Service*" Employees Association

The Pacific Service Employees Association is always striving to give its members something that is worth while, and now the Recreational Activities Committee announces the opening of Camps de Sabla and Spaulding. These camping grounds are free to all members and their families, so that they may enjoy the outdoor life.

The committee also is preparing one hundred lantern slides that will visualize to the public the work that this company is doing, and a lecture has been very carefully prepared that will give in detail how the P. S. E. A. functions, the grouping of its activities, the benefits accruing to membership, and so forth. Among these latter the P. S. E. A. offers to the employes of Pacific Gas and Electric Company the advantages of many educational courses which are now prepared and cover the following subjects: Elementary Mathematics; Direct Current; Alternating Current; Commercial Electricity; Gas Production; Gas Transmission and Distribution; Elementary Hydraulics; Steam Boilers; Steam Engines and Turbines. All these courses have been prepared with the utmost skill to enable those who take them to better their positions in life and make their everyday problems easier.

The General Committee held a very interesting meeting with the Advisory Board on Educational Work, and every one at this meeting gave his viewpoint as to how the educational work could be carried to a greater success. The chairman of the Educational Committee opened the meeting by giving a brief outline of the educational work for the year. A well-defined program was laid out last year and one of the suggestions was to have the Advisory Board and the General Educational Committee meet together so that the Advisory Board may be kept fully informed of the work of the Educational Committee. An organization chart was posted for the purpose of showing how the educational chairman, through his committee, ties in with the sec-

tional educational chairmen, class leaders and Advisory Board, as well as the personnel department of the company.

The chairman pointed out that the General Educational Committee meets regularly twice monthly and extended an invitation to the members of the Advisory Board, stating that he would be glad to have them there to give further advice in connection with the educational work. The Educational Committee work consists of preparation of courses, class organization, meetings, lectures, records and publicity and P. S. E. A. "News," and each member of the committee is selected to report on new subjects from a definite angle, namely, opportunity, advisability, practicability, affirmative, negative, and one of the committee men is selected to take either the affirmative or the negative side on all new subjects.

The committee reported that seventy-four certificates had been issued to date. There are now several classes completing courses and they will be ready to graduate shortly; twenty-four are reported from San Jose and seven from Fresno.

The executive officers of the P. S. E. A. fully appreciate the value of this educational work and are giving it their earnest support; also reports received from the divisions are very encouraging. The management heartily approves the educational work and endorses the way in which it is carried on and they are kept well informed through the minutes of the meetings. Six hundred and thirty-five employes are now taking educational courses and we have a total of sixty-three classes scattered throughout the company's system, with the following percentages of enrollment: Gas Production, 42 per cent; Direct Current, 37 per cent; Commercial Electricity, 12 per cent; Steam Boilers 6 per cent; Elementary Hydraulics, 3 per cent. This certainly shows that the employes are eager to take advantage of the opportunity afforded. H. J. S.

The Financial Side of "Pacific Service"

Following is condensed Income Account Statement for the first quarter of 1923, compared with the same period last year. Gross revenues during the three months increased \$280,377, and this additional gross combined with a decrease of \$329,315 in operating expenses, resulted in an increase of \$609,692 in net income.

CONSOLIDATED INCOME STATEMENT (Including operations of Mt. Shasta Power Corporation) THREE MONTHS ENDED MARCH 31

	1923	1922	Increase	Decrease
Gross earnings, including Miscellaneous Income	\$10,153,260.29	\$9,872,883.46	\$280,376.83	
Maintenance, Operating Expenses, Rentals, Taxes (including Federal Taxes) and Reserves for Casualties and Uncollectible Accounts.....	5,684,653.61	6,013,968.33		\$329,314.72
Net Income.....	\$ 4,468,606.68	\$3,858,915.13	\$609,691.55	
Net Interest Charges.....	1,513,297.35	1,282,362.56	230,934.79	
Balance	\$ 2,955,309.33	\$2,576,552.57	\$378,756.76	
Bond Discount and Expense	81,458.01	109,352.26		\$ 27,894.25
Balance	\$ 2,873,851.32	\$2,467,200.31	\$406,651.01	
Reserve for Depreciation.....	847,351.26	895,460.30		\$ 48,109.04
Balance to Surplus.....	\$ 2,026,500.06	\$1,571,740.01	\$454,760.05	
Dividends Accrued on Preferred Stock (6% rate).....	764,436.53	616,996.61	147,439.92	
Balance	\$ 1,262,063.53	\$ 954,743.40	\$307,320.13	
Dividends Accrued on Common Stock (6% rate)	530,031.00	433,131.14	96,899.86	
Balance	\$ 732,032.53	\$ 521,612.26	\$210,420.27	

Since February 20th electric rates have been 12 per cent lower than they were a year ago, and gas rates for the whole quarter were from 12 cents to 17 cents per thousand cubic feet lower. However, we began the second quarter of 1923 with 52,058 more active service connections than we had on our lines on April 1, 1922, and estimate this to represent an additional gross earning capacity somewhere around two and one-half million dollars. Compared with a year ago we have an additional investment in our properties of about sixteen and three-quarters millions of dollars, but are deriving substantial economies from the Pit river hydro-electric installations in which a large part of this new money has gone. Building continues to be very active in all the territory served by the company, and this, coupled with the liberal extension policy recently announced, is keeping us employed at top speed to supply new services and extensions. Some difficulty is being experienced in obtaining prompt deliveries of certain classes of materials, but, on the whole, service is being given to new customers without delay.

The Public Utility Field

The following remarks are excerpted from a recent bulletin issued under the above caption by Mr. John Moody, one of the best known statisticians and financial analysts in the country:

"In our analysis of 'The Public Utility Field' about a year ago we expressed confidence that 1922 would prove prosperous for this type of company. All groups of utilities have so amply confirmed that confidence by

actual accomplishment over the past year that we have come to regard public utility securities taken as a whole as the most desirable and attractive class in the investment market today. More favorably and intelligently regulated than the steam railroads; fundamentally more stable in every respect than the average industrial enterprise, the public utilities of the country face an assured future confronted by one great problem—to finance expansion of their facilities rapidly enough to take care of the steadily increasing volume of business offered to them. As we have pointed out previously, the stability of the utility business is due entirely to its essential character. To this may be added consideration of the fact that the business is very nearly on a cash basis, is properly non-competitive and involves no extensive inventories. The capital investment is almost entirely committed to fixed assets and the turnover, although slow, is sure."

* * * *

"*Financing*—The situation with respect to financing during the current year is particularly fortunate. Utility maturities in 1923 total only \$198,815,000 as compared with \$432,935,000 in 1922 and \$305,110,000 in 1921. As fully 35 per cent of the 1923 refunding operations have been completed to date, the utilities are remarkably free for the balance of the year to finance new construction.

"In this connection the junior financing efforts of the utility companies are worthy of more than passing interest. It will be readily appreciated that during the war period of tight money, stock financing became an exceedingly difficult proceeding and consequently continuous financing through bonds and short-term notes alone soon resulted in disproportionate capitalizations. The success of the Liberty Loan campaigns in disposing of baby bonds to the man of small means, indicated the existence of a potential investing class not previously recognized to any extent. The utility companies were quick to grasp the opportunity and to undertake the marketing of their preferred stocks locally to customers. These so-called 'customer-ownership' campaigns accomplished two purposes: they helped to restore healthy bond equities and at the same time proved largely instrumental in acquiring the good will and friendly interest of customers. While the principles of

the 'customer-ownership' plan are widely recognized and endorsed, few realize the extent to which this method of financing has been developed. When it is realized that in 1922 \$175,000,000 of junior securities were sold to customers, that the amount will probably total \$250,000,000 for this year, and that the number of stockholders has increased within a very short period from a few thousand to more than 1,750,000, the importance of this auxiliary source of capital will be properly appreciated."

* * * *

"Many other important factors, such as the increase in capital investment, extensive expansion programs, etc., could readily be brought forward to demonstrate the excellent position and bright prospects of the central station industry, if further demonstration did not seem entirely superfluous."

* * * *

"*Investment Qualities of Power Bonds*—It is evident that the power companies represent one of the most important and most stable of the basic industries; that their future, simply on the basis of past accomplishment, is definitely assured for a considerable time to come; and that well-placed mortgage bonds of the strongest of these companies may be freely classified among the highest grade of investment securities."

* * * *

EDITOR'S NOTE—*The only exception that might be taken to the foregoing analysis is the inference that the "customer ownership" idea was the outcome of the lessons learned in the Liberty Loan campaign. As a matter of fact, the Pacific Gas and Electric Company undertook its first customer ownership campaign more than three years before the first Liberty Loan campaign was launched and it was the first public utility in America to carry out this plan. The idea was conceived within its own organization and so successfully and convincingly demonstrated that other public utilities quickly adopted it, so that in the four and one-half years to the close of 1918, the total volume of their sales to customers had already reached approximately thirty millions of dollars. After 1918 customer ownership sales increased by leaps and bounds, attributable in good part, no doubt, to the education the public had received in security investments from the various Liberty Loan campaigns.*

Pacific Service Magazine

PUBLISHED IN THE INTERESTS OF ALL EMPLOYEES OF THE
PACIFIC GAS AND ELECTRIC COMPANY

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EDITORIAL

A logical as well as desirable extension of the Pacific Gas and Electric Company's business field was brought about by the recent purchase, effected through an exchange of stock, of the properties of the California Telephone and Light Company.

The latter concern was organized in November, 1911, acquiring then or later all of the properties formerly belonging to the Sonoma Valley Light & Power Company, Russian River Light & Power Company, Clear Lake Consolidated Telephone & Telegraph Company, Northwestern Electric Company, Healdsburg Telephone Company, Cloverdale Light & Power Company, Calistoga Electric Company and Mt. Konocito Light & Power Company. The operations of the California Telephone and Light Company extend throughout Sonoma and Lake counties and into the northern part of Napa and the southern part of Mendocino counties in the State of California.

In that territory the company owns and operates an electric distribution and telephone system, serving on January 31, 1923, 6138 electric customers and 2347 telephone subscribers. Its gross revenues in 1922 were somewhat in excess of \$350,000. Its field of operations is contiguous to that

of the Pacific Gas and Electric Company, from which it has for many years purchased electric energy at wholesale for local redistribution.

The business of the California Telephone and Light Company has exhibited rapid development, its sales of electricity having doubled in the last four years, in 1922 exceeding 5,372,000 kilowatt hours. Its business field embraces a rich and well established agricultural section which produces a large variety of field and orchard crops; it includes, also, the center of the greatest poultry industry in the country. This territory, in spite of the rapid growth experienced by the California Telephone and Light Company, is still only partially developed, particularly as regards the utilization of electric energy on farms and in poultry incubating establishments, but with the greater resources of the Pacific Gas and Electric Company there will soon be afforded an attractive and constantly growing market for the sale of electricity.

The electrical central stations of the United States are planning extensions and additions in 1923 which will cost more than six hundred million dollars in an effort to come abreast of the demand for service that has grown beyond their present capacity and which, because of the recent period of high money costs, they have been unable to meet, states PACIFIC SERVICE MANAGEMENT. In spite of record production during 1922, the returning industrial activity and the increasing use of electrical energy have made the present maximum output of electricity inadequate.

The total value of the extensions and additions planned for 1923 is estimated at \$602,000,000. This figure includes central generating plants, transmission and distributing systems, and is approximately 86 per cent more than was spent last year, and \$387,000,000, or about 180 per cent. more than was spent in 1921. Additional equipment to generate 2,890,000 kilowatts will be installed, of which 68 per cent will be in steam plants and 32 per cent in hydro-electric stations. In 1922 the increased generating capacity for the country was 1,772,000 kilowatts; in 1921 it was 1,250,000 kilowatts. In 1923, \$209,000,000 will be spent to increase the country's steam plant capacity. This is more than double

the sum similarly spent in 1922, and more than four times the 1921 figure.

New hydro-electric plants and additions to existing plants to a value of about \$75,000,000 will be added to the service during 1923, as against \$63,000,000 in 1922 and \$45,000,000 in 1921. This estimate of \$75,000,000 includes only those hydro-electric stations to be completed in 1923, and does not include the cost of transmission systems appertaining to their development.

Transmission and distributing systems to be extended or built this year total \$318,000,000, of which \$125,000,000 will be spent for transmission and \$193,000,000 for distribution. These figures are, respectively, about two and two and a half times the sums spent for transmission and distribution in 1922.

In 1922 the electrical central station industry established three important records. The country-wide sale of electrical energy for the first time passed the 50,000,000,000 kilowatt-hour mark; the gross income from this sale exceeded one billion dollars; and the capital invested in the industry was more than five billion dollars.

In view of these records, the demand for further extensions and additions of more than \$600,000,000 in 1923 indicates both the steady growth of the use of electricity and the satisfactory condition of the individual units that make up the electrical industry.

Experience is the best teacher, after all. That is conclusively shown by present day records which reveal a constantly growing list of failures under government ownership.

It is announced that the Canadian National Railways, owned and operated by the Dominion government, in the last two years lost \$132,914,123, which the taxpayers of Canada have been called upon to make up. And yet Canada has the reputation of being a well administered section of the British empire.

In this country the list of government ownership failures is growing rapidly. On the other side of the ledger comes a rapidly growing list of successes under the truest kind of public ownership, namely, customer ownership. Some interesting figures are to hand from the report of the New York

State Committee on Public Utility Information. It is shown that in addition to insurance companies, banks, trust companies and other institutions which are heavy investors in utility securities, there have been enlisted among the owners of gas and electric companies in New York state about 75,000 ordinary citizens, customers of those companies, who have seen in those securities good and safe investments for their savings.

There has just been completed the sale of \$15,000,000 worth of six per cent preferred stock of the Consolidated Gas Company of New York to its customers and employees. Applications for more than three times the total issue were received, necessitating the cutting down of the larger applications. Allotments of stock have been made to 57,283 subscribers, of whom no one will receive more than twenty shares. More than 30,000 individuals applying for from one to six shares will receive their allotments in full. Many other companies around the state have sold their securities directly to their customers.

Demands on gas and electric companies of New York state for service have increased to such a degree that in order to keep their business running and to provide for plant extensions and betterments the companies were required during 1922 to obtain capital at the rate of more than \$500 per minute. They had to sell to investors securities in a sum amounting to something over \$25 for each man, woman and child in the entire state.

According to the records of the Public Service Commission of New York that body authorized the issuance last year of stocks and bonds by gas and electric companies to the total amount of \$275,363,764.

NOTICE TO STOCKHOLDERS

It is our policy to regularly mail PACIFIC SERVICE MAGAZINE to all stockholders of the company. Consequently, when two or more of the same family are stockholders a corresponding number of copies are sent to the same street address. If in such instance more than one copy is not desired, we will appreciate a notification to the office of the Third Vice-President and Secretary.

Tidings From Territorial Divisions

East Bay Division

At last Oakland is to have a real athletic club. The money for the site and building has been on hand for some months but actual work was held up pending selection of one of the many sites offered. This question was definitely decided in favor of the land now occupied by the Congregational Church across from the present site of our office at Thirteenth and Clay streets. The land and building when finished will represent an outlay of \$1,500,000.

A new eight story building at Sixteenth street and San Pablo avenue and one of ten stories directly opposite give evidence of renewed activity on that thoroughfare. The first building will be erected by the American Bank and will directly adjoin its present building. The other building is to be put up by Rex Midgley and will consist of stores and offices.

The old buildings now on the property are being wrecked and no time will be lost in starting the new construction.

The prosperity of the East Bay section is observable by the demand for additional space by local banks. With two of these erecting large buildings and two more contemplating steps to enlarge, the financial world in this section seems to feel confident of a continuance of the growth of the last two years.

As an indication of the demand for homes here the announcement of J. P. Maxwell is cited. At Maxwell Park there will be constructed, starting at once, 255 new homes. When these are completed there will have been erected 565 houses in this tract all in a period of eighteen months. Similar activity is seen all over this district and blocks in the outlying section that were vacant two years ago are now built up solid with modern attractive homes.

Plans for the New Masonic Temple in Alameda have been completed and construction will start early this spring. The building will be two stories in height and will contain lodge rooms, auditorium and kitchen. It will face Alameda avenue and adjoin the present lodge building on Park street. The estimated cost is \$100,000.

May 1 the voters of Alameda carried an election for a proposed bond issue of \$750,000 to be used for a new high school. Under this issue a school covering an entire block is proposed, to have 74 class rooms, library and auditorium. It will be one of the show places of Alameda.

The thriving little city of Niles has put through a bond issue of \$65,000 to install a sewer system. The majority by which this issue carried showed that the citizens of the city feel that they are preparing for bigger development in the future.

Mr. Frank J. Kelly has purchased the immense Stanford ranch at Niles and is starting to make this the largest and most up-to-date blooded stock farm in the West.

New Business Department Echoes

The Bryant hot water heating system just installed in the new \$50,000 factory of the Great Western Meter Company is giving great satisfaction. So well are the managers of this company pleased, both by the boiler and by service rendered them in laying out plans and specifications for its proper installation, that they have written a letter of thanks that is most acceptable.

Chas. McMann, who is building the new six-story apartment house at Twenty-fifth street and Telegraph avenue, can guarantee his tenants plenty of heat and hot water. The reason for his assurance is BRYANT BOILERS.

M. Oszdorff has also installed a Bryant for his new 35-room apartment at Forty-first and Broadway.

The new King Theatre at Twenty-third avenue has installed fifteen Hall gas-fired units complete with two No. 6 fans.

This theatre is the largest yet built outside the downtown section, having a seating capacity of 2500.

An all-gas kitchen has been installed by Hoessler, Inc. at 2814 Broadway. The equipment consists of a two section John Ills gas hotel-range and a No. 2 Ills bake-oven.

The electric idea was completely sold during March to three apartment houses and several large residences, which were completely electrified.

The Ogle Bungalow Court in Berkeley is an example of modern home construction, having installed electric ranges and water heaters in each of the twenty-four homes.

H. W. B.

De Sabla Division

Chico will have a Fourth of July celebration, not for one night, but for four nights and a day, it was decided at a mass meeting held at the Municipal building under the leadership of the Chamber of Commerce. The celebration will open on Saturday night, June 30, with a street dance and Mardi Gras, and will be continued on Monday and Tuesday nights, the whole ending in a blaze of glory on Wednesday when a giant picnic and field day will be held in Bidwell Park to commemorate the opening of the lower swimming pool.

Prizes will be given for every event on the program. It is expected to make the celebration such a large affair that thousands of persons will be attracted to Chico from all parts of the Sacramento Valley.

Plans for the remodeling of the front of the Nottelman building were completed when it was announced that the B. H. Steffen Company had been let the contract for the work.

The building is located next to the new First National Bank building now under construction. One-half of the lower floor on the east side of the building will be

occupied by the Parker Hardware Company, now located at Third and the Esplanade in Chico Vecino.

Not to be outdone by last year's crops the orchards of Chico and vicinity have promised to yield their fruits in an even more abundant form than ever before. The early rains in April ended the fifty-day drouth that was beginning to cause much concern among the farmers. The orchards are now in good condition and the farmers in this section are looking forward to a very prosperous year. This being an agricultural district business conditions in general depends on the crop outlook.

The almond crop in particular is exceptionally good and bids fair to be the largest ever harvested in this section.

Butte county wool is bringing the record price of 60 cents a pound, according to reports. The average market price is 55 cents. From Durham, H. Johnson shipped several sacks of wool to Stockton at this price. Over 3600 head of sheep at an average price of \$8.75 per head were also shipped from this point by the Union Sheep Company to the same concern at San Francisco.

It is planned to ship from Vina 850,000 pounds of wool from various growers. The shipment will be consigned to the Wool Growers' Association. L. R. W.

Colgate Division

Marysville is to have a splendid new hotel. This was made certain recently when the citizens of that thriving community got together under the leadership of Frederick D. Cloud of San Francisco, and subscribed more than two-thirds of the funds required to finance it. To complete the financing, a modest bank loan has been secured. Including the building, grounds and furnishings, the new hotel enterprise calls for a total investment of more than \$400,000. It is to be a thoroughly modern hotel, artistic in structure and of the very latest design. It is to be a combination of the tourist-commercial type, in style and arrangement, so that it may appeal to the largest number of both tourists and business men and women.

In planning the building special consideration is to be given to the social needs of the community. Besides an unusually attractive lobby there will be a spacious lounge, a banquet hall suitable for all kinds of social functions and convention meetings, together with a series of private dining and tea-rooms. Other features include out-door verandas, sun porches and a swimming pool. Most of the rooms will be provided with private bath, and all rooms will be outside rooms. Moreover, there will be a wide selection in order that the man of small means as well as the wealthy tourist may find the kind of accommodation he may want.

The enterprise has been handled in a thoroughly business-like manner in every detail. The plan presented by Mr. Cloud and adopted by the Board of Directors not only fully protects the investment of every stockholder but reduces the expenses of organization and of conducting the fund raising campaign to less than 4 per cent of the amount of money raised. No new undertaking has started out on a sounder business basis.

That a mining boom bigger and more profitable than the excitement of the seventies will soon sweep California, especially the northern sections, where rich deposits await those who seek them, was predicted by H. L. Berkey, prominent mining engineer and part owner of the Scales hydraulic mine in Sierra county. Berkey's associate is Bayley Hopkins. Over \$250,000 has been invested in machinery for the Scales mine which is equipped with its own power plant and all modern mining machinery.

Completion of the Bullards Bar dam on the Yuba river will mark a new epoch in hydraulic history in California, Mr. Berkey declares. The dam will make possible the operation of rich properties which have lain idle since the State Debris Commission ordered them closed in the eighties. The huge dam when completed will measure 176 feet in height. It will be years, Mr. Berkey states, before the deep canyon can be filled with debris necessitating the construction of a new dam.

With the completion of this structure only a few months away thousands of dollars are being invested and many of the old properties are being purchased by capitalists.

Among these are the following: The Kingdon property, by a Los Angeles syndicate; the Hardscrabble, by A. M. Phelps, of Chicago; the Garden Point property, by A. D. Leahfeldt, of Nome, Alaska; the Hepsey dam property, by Los Angeles men.

Bullard's Bar dam is being constructed at tremendous cost by the Yuba Development Company. They have contracted with miners to take care of debris at the rate of three cents. With the hydraulic boom will naturally follow the development of quartz and placer properties. With cheap power the demand for gold and the added interest in mining, the future never had a brighter outlook, states Engineer Berkey.

Secretary W. M. Connarn and Photographer Henry Sackrider have been getting pictures of the Reed pear orchards, owned by Howard J. Reed, the pear king of California. He makes his home on the Feather river orchard, which is the largest pear orchard in the world, and has been developing another fine one on the Yuba river bottom lands just east of Marysville.

The pictures will be used in the panels to be installed in the waiting rooms of the Sacramento Transportation Company at San Francisco and copies will be sent to Californians, Inc., for use in the extensive work it is doing for Northern California.

J. J. Harris of the Sacramento Northern will bring that company's official photographer here to make photographs of the two orchards for use in the advertising matter being distributed by it and the Western Pacific, through their eastern and middle west connections. One picture of the great Feather river orchard will be an enlarged panorama, which will be colored. This will be hung in a prominent place in the Chicago offices of the Western Pacific.

These pictures are being made at a time when the pear trees are in full bloom, and the photographs are expected to prove highly artistic.

Spring oranges the size of small pumpkins are an actual fact right here in Yuba City, which claims some title to character membership in the citrus belt. Yuba City challenges the State to show a bigger orange than one of two which Mrs. J. M. Kelly of C street, brought to the office of Horticultural Commissioner H. P. Stabler.

It weighed 27 ounces. In diameter it was 16-inches one way and 17 the other. The other orange was a trifle smaller. And there are others on the trees that will make ordinary oranges look like Easter eggs in comparison.

That more than 2000 acres in fruit trees and 1000 acres in vineyard had been planted in Yuba county since the opening of the planting season on January 1, and that at least 1000 acres more would be planted before the season closed, was the report of B. W. Knight, acting horticultural commissioner of the county.

"More fruit trees and vineyards were planted in Yuba county in February than in the entire four years preceding," declared Knight. "And I fully expect that 1000 more acres will be planted in fruit and a considerable acreage to vineyard during the balance of the planting season, which will make considerably more than 4000 acres planted to fruit and vines in Yuba county for the single season."

This announcement comes as a surprise to the most of us, for while we realized there had been extensive plantings we did not realize that such a large acreage was going into fruit and vines. It was also a surprise to learn that more fruit trees and vines had been planted in Yuba county during the month of February than in the past four years.

In former years Yuba county grew considerable fruit which supplied not only the local community but which was sent, chiefly by pack train and stage, to all the mining communities that then dotted the Sierras.

Hydraulic mining was responsible for the wiping out of many fine orchards and for years the fruit industry in the county languished. Now there is a new spirit abroad. Big tracts of land are being opened, the Yuba County Chamber of Commerce is going out after settlers, and the land seekers are realizing that Yuba county offers exceptional advantage to the fruit grower and the grape grower.

That Colusa county is particularly adapted to the dairy industry and the development of pure bred Holstein-Friesian cattle is proven by the following facts:

The first cow in the world to produce over 1200 pounds of butter from over 31,-

000 pounds of milk in one year was developed by the J. S. Gibson company of Williams, Colusa county, California.

The only cow in the world with a milk record of 31,000 pounds of milk in one year to produce a daughter with a record of over 28,000 pounds of milk in one year was developed in Colusa county.

Eleven per cent of the cows in the world to produce over 30,000 pounds of milk in one year were developed in Colusa county.

Twenty-two per cent of the cows in the State of California to produce over 1200 pounds of butter in one year were developed in Colusa county.

Thirty-three and one-third per cent of the cows to produce over 1200 pounds of butter from over 30,000 pounds of milk in one year in the State of California were developed in Colusa county.

Fifteen acres of apples in blossom form one of the prettiest sights among the orchards of Sutter county at present. These are on the E. A. Bigger place on the river road below Yuba City. While Sutter county and the entire Sacramento valley are considered not adapted to the growing of apples, the Bigger orchard has been a success and a proof that the old supposition is not entirely true. The trees are of the White Astrachan variety, of which Sutter has become a large producer. The orchard is close to the site of General Sutter's old iron fort, which protected settlers and the general's property in the pioneer days.

F. A. P.

Fresno Division

One of the newest additions to Fresno's skyline will be the new fifteen-story Fidelity Bank Building, located at the corner of Mariposa and J streets. Noteworthy features will be a gymnasium on the fifteenth floor for the bank employes, also utilizing the basement as a garage and automobile parking space for tenants of the building. The banking rooms on the main floor will be the most pretentious and best appointed of any of the valley's banks. Fixtures alone will cost over two hundred thousand dollars.

Pinedale, the new addition adjoining the Sugar Pine mill, is rapidly assuming the

aspect of a miniature city. Approximately two hundred lots have been sold; several business buildings have been started, some fifty homes, improvements totaling over one hundred and fifty thousand, are being made. High pressure water system, grading, curbing and sidewalks are being rapidly put in.

A rapid growth is predicted for Pinedale, as the Sugar Pine mill will be in operation about July 1. This enterprise is the largest of its kind in the San Joaquin valley, representing an investment of over seven million dollars and carrying on its payroll fifteen hundred employes. Connecting this modern mill with the logging camp located in the high Sierras will shortly be completed the longest and most elaborate logging railroad on the Pacific Coast. To quote Mr. O. Russell, chief engineer for the project:

"The Sugar Pine mill is one of the finest and most modern in the country. It has been built for permanence and with a view to the future development of this part of the country. In the woods, 5,400 feet above sea level, the best lumber camp in America has been built. There is accommodation for the 500 men who will be employed this summer, with hot and cold running water in the houses, steam heat and everything else that goes to make the modern city. No other lumber company in the history of logging has ever provided a camp of this kind for its workers.

"The mill pond has been completed and water turned in. It is rapidly filling and will be ready to receive logs in ten days. There are six miles of pipe lines about the mill with fire hydrants. The power-house, nearly complete, is the largest and best of its kind in the West, developing 6,000 horsepower.

When completed the drying and lumber yards at the mill will include eighty acres, with twenty miles of narrow gauge tracks to handle the lumber about the mill. Hundreds of switches have been installed. The box factory, shook storage building and planing mill have been practically completed. The buildings are a total length of 1,760 feet and are about 250 feet in width. The floors are now being concreted by the acre.

It is the largest area under a single roof on the Pacific Coast."

E. W. K.

Drum Division

Final plans have been made for raising the \$150,000 fund necessary to assure the completion of the Victory highway across Western Utah and Nevada, involving the construction of the famous "Wendover cut-off" in Utah, which will divert through Placer county into Northern California and San Francisco thousands of tourists who have formerly taken the route to Southern California.

The motorist of a few years from now will encounter many miles of welcome shade along Placer county highways if the planting of trees progresses at the rate established this year. During the spring of 1923 no less than 882 shade trees have been set out along fifteen miles of highway, principally along the road from Sylvan to Loomis and from Lincoln to Sheridan.

Active construction work has begun on the new addition to the Pacific Fruit Express Company's plant at Roseville, which will make it the largest ice manufacturing plant in the world. Scores of men are at work rushing the job to completion in order to have it in readiness for the coming fruit season.

The new building cost will be between \$150,000 and \$200,000, while new ice-making machinery and other mechanical equipment will represent an additional expenditure of approximately \$200,000.

"Pacific Service" will play an important part in the new construction, as two additional synchronous motors of 550 horsepower each are to be installed, bringing the total installation up to 3012 horsepower. It is estimated that the plant will use nearly 1,000,000 kilowatt hours per month when the new machinery is installed.

Construction headquarters are being established at Cisco where the base of operations will be located for raising Fordyce Dam 47 feet, which will practically double its present capacity. Superintendent Jim Martin, who is in charge of the work, is busy marshalling the necessary men and supplies to start active operations as soon as weather conditions permit.

A new mine is being developed at Alta Hill, near Grass Valley, by the Grass Valley Gold Mines Company. A new shaft is being sunk and machinery installed. Energy to the extent of 200 horsepower is to be supplied by "Pacific Service." It is expected that the Grass Valley Gold Mines will eventually utilize about 800 horsepower.

It is interesting to note that during the past winter oranges and ice were being harvested at the same time in Nevada County. In both instances the crop was reported good. The altitude of the western part of the county is less than 1000 feet and there the citrus fruits are grown, while to the east heights of nearly 8,000 feet are attained and the east Sierra slopes furnish most of the natural ice produced in the State.

H. S. F.

San Joaquin Division

The City of Patterson in Stanislaus county has recently signed contracts for the installation of eight electroliers in its business district. This installation constitutes the beginning of a program of better street lighting and is but another progressive step taken by that thriving little city.

The Standard Lumber Company of Standard city, Tuolumne county, has just purchased 13,300,000 feet of government timber on the south fork of the Stanislaus river in the Stanislaus National Forest Reserve. The sale will run for a period of two years and the cutting will be done under modern forestry methods, which will insure the growth of a new forest on the reserve. The Standard Lumber Company is one of the larger users of "Pacific Service," having recently completely electrified its entire plant.

Normal production has been resumed at the Stockton plant of the Holt Manufacturing Company, and six two-ton tractors are now being turned out daily. At the

present time 1,000 workers are employed at the plant, and present plans indicate that the crew will be substantially increased shortly.

The town of Soulsbyville, in Tuolumne county, is soon to receive electric service from lines now being constructed into that town. The original installation will serve fifty new lighting consumers and will provide the residents of that little mining town with the comforts and convenience that "Pacific Service" only can render.

The Modesto Elks Lodge has definitely decided to erect its \$90,000, four-story building. The plans as accepted will afford the members luxurious club rooms and dormitories. The building will be completed by next September. This clubmen's building is indicative of the progressive spirit now prevailing in Modesto, and adds still another asset to that city.

New railroad yards costing \$1,500,000 are to be installed in Stockton by the Western Pacific Railroad, which has secured a 130-acre tract of land two miles in length along the eastern side of its right of way south of the city. Accommodation will be provided for 1,000 cars, making the yards one of the largest in California. Eventually there will be trackage for 4,000 cars, or more than 30 miles of track.

Along with this project goes the icing plant under construction at the present time. The plant will have a production capacity of 150 tons of ice per day, and will be so arranged that it will be possible to ice 50 cars at one time. The total icing capacity will be 200 cars per day.

"Pacific Service" has come in for considerable praise in connection with the \$50,000 fire which recently burned down part of the business district in the town of Byron. Within an hour following the collapse of the burned buildings wires had been re-strung, and by nightfall electric service had been re-established.

IN MEMORIAM

It is with the deepest regret that we report the death of George W. Hamm, chief meter man in the water department at Stockton, who died of pneumonia following an attack of influenza on April 13, after an illness of one month.

Mr. Hamm was born near Clements, San Joaquin county, February 2, 1876, and entered the employ of our company in November, 1905, in the water construction department. By close application to his work he soon gained recognition and promotion. He was very popular and well liked among his fellow workers who are deeply affected by his sudden death. Our sincere sympathy is extended to his sorrowing wife.

L. J. N.

North Bay Division

Authority to submit an electric GM for extension from Lagunitas to Woodacre has been obtained. This new line will give electric service to about 200 families. In addition, approximately 100 horsepower in motors will be supplied.

The North Bay Division will not lose any street lighting revenue on account of the new rates. Instead of cutting down their monthly bills for street lighting, the various towns are taking advantage of the reduced schedule to increase the size of their lamps, and in most cases there is an actual increase of revenue to the company. San Rafael, Larkspur, Corte Madera, Kentfield, Fairfax, Bolinas, La Verne, Tamalpais Valley and Tiburon have already authorized this change.

Irwin street, San Rafael, is soon to have an ornamental street lighting system to consist of sixteen 250-candle power units mounted on ornamental electrolier standards. An electrolier system is also going in on Main street, Petaluma.

The National Ice & Cold Storage Company is putting in a new plant in San Rafael which will require "Pacific Service." About 75 horsepower in motors is to be installed.

The evening of April 10 saw a jolly party of "Pacific Service" employees gathered in the San Rafael office where a radio receiving set had been set up. The principal number of an interesting radio program was President Creed's annual report to the stockholders in which he told of another year's progress for our company. Refreshments were served by the girls of the office and everybody voted the affair a success.

The announcement of the opening of the summer dancing season of the Larkspur Association of Volunteer Firemen contains the following paragraph: "The indirect lighting system lately installed is unique of its kind in the great State of California and is only possible through the up-to-the minute service of the Pacific Gas and Electric Company."

A series of gas cooking demonstrations were held in San Rafael, Petaluma, and Santa Rosa under the able direction of Mrs. Nellie Warren. The local dealers of each of the cities where demonstrations were held exhibited ranges, water heaters and radiantfire heaters. In spite of rainy weather at San Rafael there was a large attendance. Petaluma reports 110 present.

As soon as the weather permits an 8-inch gas main will be run from the gas works at Santa Rosa to College avenue to tie in with six-inch gas main on College avenue. Work will be started as soon as material arrives. The eight-inch gas main on Slater and College avenues to the city limits of Santa Rosa has just been completed.

A new theatre has been started on B street, Santa Rosa, by Greott and Strobino. This will give Santa Rosa an opportunity to see the road shows that visit San Francisco.

The Belden Silk Company has arranged with our company for the installation of power service to replace a fifty-horsepower steam engine which they have been using. This installation will give the silk factory 110 horsepower.

An appropriation of \$3188.88 has been secured to replace the power lines on D street between Third and Sunnyslope, Petaluma. This will be done to clear the wires of the trees and to make the installation standard. This installation will be on a joint pole arrangement whereby all wires on the street will be on one set of poles.

Sausalito proposes to itemize a bond issue for school improvements, assigning \$68,000 for the erection of a new building on the site of the Central School and \$85,000 for the purchase of another site and the erection of a building thereon.

The Acme Ice Cream Company has located a distribution plant on First and B streets, San Rafael. Carpenters are now engaged in remodeling the place and installing the necessary equipment. Application has been made to the Pacific Gas & Electric Company for the installation of a 5-horsepower motor.

J. Albert of San Rafael is preparing plans and specifications for a consolidated market for San Rafael, to be erected on the Coleman property on the north side of Fourth street next to the new water district site. The investment represents about \$50,000 and work will begin about June 1.

W. W. S.

Shasta Division

The Alta Hotel, one of Redding's oldest landmarks, has been razed to make room for the new Post Office block at California and Tehama streets. The new building, of reinforced concrete and brick, will house the postoffice on the ground floor. The second floor will be devoted to business offices and club rooms for Shasta Post, American Legion. An interesting feature of the

brick work in the new building is the fact that the bricks were once a part of the Empire Hotel in Shasta, another famous hotel in early California history.

Office quarters in the Post Office block will be finished and equipped in the most up to date manner. "Pacific Service" will heat the entire building with gas. The plans call for thirty individual heating units, Diablo radiators of five and seven units being used. A battery of meters will be set in the basement and from each meter the gas will be piped to the radiators in the various offices. Each radiator, a separate heating unit in itself, will be properly vented, the architect, Mr. C. C. Dakin, of Berkeley, having laid particular stress on this important detail of gas heating.

To insure an ample gas supply for the building a four-inch main will be laid on Shasta street from Oregon to Market. In addition to supplying the Post Office this main will improve the service to two industrial installations on Shasta street.

That one successful industrial gas installation and a satisfied consumer in a small community leads to more and larger installations has been proved conclusively. Two small installations recently installed in a blacksmith shop and an iron foundry have led to inquiries by other firms in the same business for estimates of probable cost, and in each case the pioneers in the work have made definite plans to increase their own consumption in addition to recommending the service to others.

Anderson passed from its condition of semi-darkness under the obsolete street lighting system to one of brilliancy by the recent scrapping of the old system for an approved and up-to-date installation.

Practically the entire distribution system was renewed in the change. Eight 100-watt lights serve the business section of the town. The residential section is lighted by some sixty lights of 60 and 40-watt capacity. The local merchants feel that the change has greatly improved the general appearance of Anderson at night, and will undoubtedly improve business by attracting the tourist on his way.

Plans for a line extension from Coleman power-house to Jelly, along Battle creek and the Sacramento river in Tehama county, are now going through routine channels. Present estimates call for an initial load of approximately 300 horsepower in motors for agricultural purposes and ten to fifteen kilowatt lights. From Jelly it is hoped to be able to extend the line south to serve Bend on the West Side Division.

"Pacific Service" will lay approximately two miles of gas mains in Redding during the next four months. New consumers to the total of 100 will be served by the extensions.

F. S. C.

San Francisco Division

Just note the new business activities for the first two months of 1923 as compared with the first two months of 1922. During the first two months of 1922 we added 2457 new consumers, electric, to the lines of the Pacific Gas and Electric Company, or 2180 kilowatt in light and 2650 horsepower. For the same period, two months, 1923, we added 5967 new consumers, an increase of 3510 or considerably over 100 per cent increase, with 5282 kilowatt in light, an increase of 3102 kilowatt and 4491 horsepower, or an increase of 1841 in horsepower.

For further proof ask our Records Department or Mr. A. U. Brandt, whose forces were kept more than busy trying to handle the increased volume of business obtained by the new business department. Note the appreciation expressed by Mr. Frank J. Morse in his letter of April 12 of the speedy service rendered by the physical department in re-establishing service during one of the recent storms.

"April 12, 1923.

Pacific Gas and Electric Company,
445 Sutter Street,
San Francisco, California.

Gentlemen:

Attention: Service Department.

About 6 o'clock p. m. last evening I

phoned your department that the wires supplying my home at Cedro avenue, Ingleside Terrace, had fallen down during the recent storm. Before 7:30 that same evening your service crews had repaired same and lights were again on.

Considering the stormy night and that Ingleside Terraces are some distance out, your prompt service is deserving of great praise, so I send you this letter of thanks.

Yours very truly,

(Signed) FRANK J. MORSE."

During the interim we added 215 horsepower for the month of March for the new swimming pool to be operated by the city and county on Sloat boulevard.

The Bulletin Publishing Company, 767 Market street, will now take its entire service from the Pacific Gas and Electric Company for the total output of the well-known evening paper, consisting of four kilowatt lighting and 251 horsepower.

Our Gas Department is following the general practice of the company to step out of the merchandising end when it has pioneered sufficiently to warrant the dealer handling the work. The house heating division during the month of March spent its entire time working with heating contractors, architects and builders, selling the prospect and turning it over to the dealers, of which there are some eleven now so situated that they can handle the business. The proof of the pudding is in the eating. Out of forty prospects, four were sold; one lost and thirty-five pending, with every reason to believe that they will go gas.

Our industrial gas division is out to make good the bogie set for 1923 cubic feet increase. The industrial gas survey is progressing, 205 gas fuel surveys having been made up to March 31, 1923, in addition to having secured fifty-six good gas prospects other than the regular gas survey.

One of the new consumers for the month of March was Jack Martin, who opened a bakery at 999 Geary street. This bakery is operated on the co-operative plan, as all of the firms are interested in the affair, and at a luncheon given by the Optimist club Mr. Martin was especially honored and the best wishes expressed by this organization for his success. The plant opened Friday, March 16, 1923, for inspection. The Pacific Gas and Electric Company wishes Jack and his associates the best possible success.

On Friday, March 2, forty-three of San Francisco's jolly gas men gathered at the Hotel Stewart, this being the first meeting of the month. Messrs. Frank Runyon and LeRoy Smith, Secretaries of the Retail Furniture Dealers and Plumbers and Hardware men, respectively, were special guests of the occasion. March was a fine month for gas appliance work. F. T.

The G. M. G., for the installation of 9491 feet of 36-inch C. I., 3580 feet of 24-inch C. I. and 688 feet of 12-inch C. I. main to be run in conjunction with the new ten-million foot holder at the Potrero has been authorized. Preparations are now under way for the assembling of material and equipment, necessary to facilitate the handling of this heavy pipe, one 12-foot length of 36-inch C. I. main weighing approximately $2\frac{1}{4}$ tons. This work will start when the eastern shipment of material is received. The formation of the plan of attack has been made, the forces organized and divided in three separate divisions, the head of each division being directly responsible to the Engineer of Distribution for the successful completion of his task. The divisions are as follows:

Construction—Charged with physical installation of proposed work. Handling of all labor, equipment, material and laying pipe.

Material—Charged with furnishing of all material required and its delivery. Accounting of labor and material used, credits and salvage.

Records—Charged with obtaining a field record of the installation for office map.
E. G. C.

Twenty-eight additional 600 candle-power lamps have been installed on Geary street between First and Twenty-eighth avenues.

The annual inspection and overhauling of the turbo-generators at station "A" is now under way.

One of the two new 1000 kilowatt railroad rotaries recently installed at station "C" has been tried out with very satisfactory results. This machine, which is the first of its type to be installed on the P. G. & E. system, has an automatic starter on the A. C. side. The automatic feature operates in the following manner:

The station operator closes his main bus oil switch and pulls the control button, which in turn lifts the brushes, starts the machine and flashes the D. C. field, and when it is built up in the proper polarity cuts in the normal field. It then trips the starting breaker and closes the running breaker. The rotary is then ready to be closed in on the direct current railroad bus.

The work of building the addition to station "G," Ellis and Broderick streets, and the installation of the equipment has been entirely completed. The station now has an additional transformer capacity of 7950 kilowatts, making the total capacity 12,450 kilowatts.

The construction work on the building and the equipment at new station "H" has been completed and the station is now in service. The feeders are now being cut over from old Martin station to the new station.

Work has commenced on the addition to Station "K," at Twenty-fourth and Balboa streets. It is planned to increase the building to twice its present size and install a new 4 kv. and 11 kv. bus structure and a new bank of transformers with an ultimate capacity of 7500 kva.

Head Office

The Gas Sales Department announces that Mr. W. R. Adams has joined the department in the capacity of hotel equipment engineer.



W. R. Adams

Mr. Adams has specialized on the sale of large hotel and restaurant equipment for many years, starting in at the bottom in the shops as a sheet metal worker in the manufacture of kitchen equipment. His experience includes the application of oil, coal and city gas to hotel work, and this fits him

particularly for the exploitation of gas fuel inasmuch as he is familiar with all branches of the business and can, therefore, successfully figure against competing fuels. He spent eight years with the Mangrum & Otter Company of San Francisco, specializing in hotel equipment, and has advised with most of the prominent architects in the design of the largest hotels, cafeterias, hospitals, clubs and institutions which have been built in Northern California. Mr. Adams was the designer of the kitchens in the Hotels Whitcomb, Plaza and Clift in San Francisco as well as a great many clubs, hospitals, etc., throughout the state.

The competition with oil and coal has been very severe in hotel and restaurant work, and although gas is supreme for this use it is necessary to make an aggressive effort to sell it to the public. This particular field is very large and the accurate surveys which have been made indicate a large amount of potential business in this class. Mr. Adams will be available to all divisions of the company in order to render service to our large consumers, and his very extended experience will enable him to be of great value to them.

"Pacific Service" welcomes him to the ranks.

READERS OF PACIFIC SERVICE MAGAZINE, TAKE NOTICE.

This number is the last of Volume XIV, and, as has been done in the past, each district office will be supplied with a bound copy for the office library.

Those who have all the copies of Volume XIV, or any previous volume, in perfect condition, may have them bound by forwarding them, charges prepaid, to the Stationery Department. The charges for binding will be \$1.25 per volume, and remittance must accompany magazines.

Forward magazines and make remittance to
STATIONERY DEPARTMENT—Pacific Gas and Electric Company
445 Sutter Street, San Francisco

Name of sender with full and complete address must be plainly marked on each package

No magazines or remittance will be accepted after June 30

Pacific Gas and Electric Company Furnishes

"PACIFIC SERVICE"

TO OVER 656,000 CONSUMERS OF

GAS • ELECTRICITY • WATER • STREET RAILWAY1,715,959 Total Population Served in Thirty-six of California's Counties
CITIES AND TOWNS SERVED BY COMPANY

	DIRECTLY		INDIRECTLY		TOTAL	
	No.	POPULATION	No.	POPULATION	No.	POPULATION
Electricity.....	170	1,117,541	61	156,411	231	1,273,952
Gas.....	61	1,134,687	2	8,600	63	1,143,287
Water (Domestic).....	18	61,719	8	15,488	26	77,207
Railway.....	1	65,908			1	65,908

Place	Population	Place	Population	Place	Population	Place	Population
¹ Alameda.....	28,806	¹ El Verano.....	400	¹ Meridian.....	200	² San Leandro....	5,703
² Albany.....	2,462	² Emeryville.....	2,390	² Millbrae.....	300	² San Lorenzo....	500
² Alvarado.....	1,000	² Escalon.....	600	² Mills.....	400	² San Martin.....	250
² Alviso.....	517	² Esparto.....	200	² Mill Valley.....	2,554	² San Mateo.....	5,979
² Amador City.....	377	² Fairfax.....	250	² Milpitas.....	300	² San Pablo.....	500
² Anderson.....	750	² Fairfield.....	1,008	² Mission San Jose.....	500	² San Quentin....	3,000
² Angel Island....	500	² Fair Oaks.....	300	² Modesto.....	9,241	² San Rafael.....	5,512
² Antioch.....	1,936	² Fall River Mills	300	² Monterey.....	900	² Santa Clara....	5,220
² Aptos.....	300	² Farmington....	300	² Mokelumne Hill	900	² Santa Cruz.....	10,917
² Arbuckle.....	900	² Felton.....	300	² Morgan Hill....	5,479	² Santa Rosa.....	8,758
² Atherton.....	500	² Folsom.....	2,000	² Mountain View..	646	² Saratoga.....	500
² Auburn.....	2,289	² Forestville.....	250	² Mt. Eden.....	1,888	² Sausalito.....	2,790
² Barber.....	500	² Fresno.....	45,086	² Napa.....	200	² Sebastopol.....	1,493
² Belmont.....	375	² Gilroy.....	2,862	² Napa.....	6,757	² Shasta.....	200
² Belvedere.....	616	² Glen Ellen.....	1,000	² Newala City....	1,782	² Shasta.....	200
² Benicia.....	2,693	² Gonzales.....	500	² Newark.....	500	² Sheridan.....	250
² Ben Lomond.....	400	² Grass Valley....	4,006	² Newcastle.....	750	² Smartsville....	300
² Berkeley.....	56,036	² Gridley.....	1,636	² Newman.....	1,251	² Soledad.....	400
² Biggs.....	683	² Grimes.....	500	² Niles.....	1,000	² Soquel.....	400
² Bolinas.....	200	² Groveland.....	500	² Novato.....	400	² Sonoma.....	801
² Brentwood.....	400	² Guerneville....	800	² Oakdale.....	1,745	² South San Francisco	4,411
² Broderick.....	700	² Hamilton City..	250	² Oakland.....	216,261	² Standard.....	500
² Burlingame.....	4,107	² Hammonton....	500	² Oakley.....	200	² Stanford University	2,700
² Byron.....	350	² Hayward.....	3,487	² Occidental.....	600	² Stockton.....	40,296
² Campbell.....	600	² Hercules.....	373	² Orland.....	1,582	² Suisun.....	769
² Capitola.....	300	² Hillsborough...	931	² Orville.....	3,340	² Sunol.....	350
² Carmel.....	638	² Hollister.....	2,781	² Pacheco.....	300	² Sunnyvale.....	1,675
² Cement.....	1,000	² Honcut.....	500	² Pacific Grove...	2,974	² Sutter Creek....	250
² Centerville.....	1,000	² Hughson.....	250	² Palo Alto.....	5,900	² Tehama City....	196
² Ceres.....	637	² Imperial.....	1,000	² Paradise.....	500	² Tiburon.....	400
² Chico.....	9,339	² Irrington.....	1,000	² Patterson.....	694	² Tracy.....	2,450
² Colfax.....	573	² Jackson.....	1,601	² Penn Grove.....	200	² Tres Pinos.....	300
² College City....	912	² Jameson.....	750	² Penryn.....	250	² Tuolumne.....	1,500
² Collinsville....	200	² Jennett.....	464	² Perkins.....	300	² Turlock.....	3,394
² Colma.....	1,500	² Kentfield.....	500	² Petaluma.....	6,226	² Vacaville.....	1,254
² Columbia.....	200	² Kenwood.....	300	² Piedmont.....	4,282	² Vallejo.....	21,107
² Colusa.....	1,846	² Keswick.....	200	² Pike City.....	200	² Vina.....	300
² Concord.....	912	² King City.....	1,048	² Pine Bluff.....	3,104	² Vineburg.....	200
² Cordelia.....	300	² Knights Land- ing	400	² Princeton.....	300	² Walnut Creek..	538
² Corning.....	1,449	² La Grange.....	200	² Red Bluff.....	2,962	² Warner Springs..	200
² Corte Madera...	607	² Larkspur.....	612	² Redding.....	4,020	² Waterford.....	250
² Cotati.....	200	² Lathrop.....	600	² Richmond.....	16,843	² Watsonville....	5,013
² Cottonwood....	500	² Lewiston.....	200	² Rio Vista.....	1,104	² Wheatland.....	435
² Coyote.....	200	² Lincoln.....	1,325	² Ripon.....	500	² Williams.....	650
² Crockett.....	1,500	² Live Oak.....	300	² Riverbank.....	200	² Willows.....	2,190
² Crow's Landing..	300	² Livermore.....	1,916	² Rodeo.....	300	² Winters.....	903
² Daly City.....	3,779	² Lomita Park....	600	² Roseville.....	4,477	² Woodland.....	4,147
² Danville.....	400	² Los Altos.....	500	² Ross.....	727	² Woodside.....	300
² Davenport.....	300	² Los Gatos.....	2,317	² Sacramento....	65,908	² Yolo.....	350
² Davis.....	939	² Los Molinos....	200	² Salinas.....	4,308	² Yuba City.....	1,708
² Decoto.....	300	² Madison.....	300	² San Andreas....	1,183		
² Del Monte.....	300	² Manteca.....	600	² San Anselmo....	2,475		
² Denair.....	200	² Mare Island....	600	² San Bruno.....	1,562		
² Dixon.....	926	² Martinez.....	3,858	² San Francisco..	506,676		
² Drytown.....	200	² Marysville.....	5,461	² San Jose.....	39,642		
² Duncan's Mills..	200	² Maxwell.....	500	² San Juan.....	350		
² Durham.....	250	² Mayfield.....	1,127				
² Eldridge.....	500	² Menlo Park.....	900				
² El Cerrito.....	1,505						
² Elmira.....	350						

Unmarked—Electricity only.

¹—Gas only.²—Gas and Electricity.¹—Gas, Electricity and Water.²—Gas, Elect. and St. Railways.³—Electricity and Water.⁴—Electricity supplied through other companies.⁵—Gas supplied through other companies.⁶—Water supplied through other companies.**"PACIFIC SERVICE FACTS"**

A total of over 47,000,000,000 kwh. of electric energy was produced in the United States during the year 1922, of which 36.2% was produced by hydro power and 63.8% by steam power.

Of the total generated by this Company, 81.7% was produced by hydro and 18.3% by steam.

The P. G. & E. Co. produced 6.50% of the total hydro electric energy generated in the United States during 1922.

Total Cities
and Towns... 1,347,844
Add Suburban
Population... 368,115
Total Popula-
tion Served... 1,715,959

Service

to the Community

THE meaning of gas service, as we take it, is not merely maintaining continuity of supply but rather, in a broader sense, giving strict attention to the details that make perfect service.

This Company maintains a personal advisory service department, which is available at all times to every consumer and prospective consumer and for whose services no fee is charged. This function is performed by the New Business Department through its engineers, men trained for and experienced in their particular fields. The problems analyzed and solved by these engineers are unlimited whether it be recommendations on domestic cooking or electric push button controlled heating installations or advice on industrial processes, such as baking, candy making, hat shaping, vulcanizing, rivet heating and heat treating of steel in carbonizing furnaces.

Gas Sales Department

PACIFIC GAS AND ELECTRIC
COMPANY

P · G · and E ·
"PACIFIC SERVICE"

man
754

